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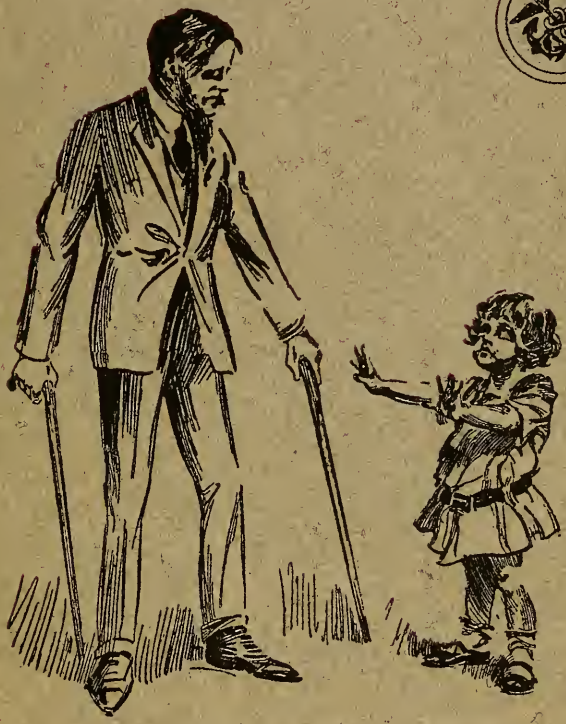

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TODAY'S WORLD PROBLEM IN DISEASE PREVENTION

A NON-TECHNICAL DISCUSSION OF SYPHILIS AND GONORRHEA

by

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INTRODUCTION.

The years of the great war have brought a sharp awakening of the American people to the need for facing the greatest present-day problem of public health. Almost over night we seem to have changed from a nation with its eyes shut and its ears stopped into a country alert, interested, and on the road to the full accomplishment of what had hitherto been declared impossible.

In endless repetition the advocates of the doctrine of *laissez faire* have told us of the antiquity of prostitution and of the certainty that it would be with us forever in undiminished prevalence. They have said likewise that syphilis and gonorrhea and chancroid—that group called venereal diseases because of their commonest method of transmission—would never come under public health control, because they were "secret" diseases and "different from other diseases." Therefore, the sufferer must be left undisturbed, to spread disease to others and to decay in self-neglect, unless chance information or intuition made him seek and appreciate the advice of a conscientious and skilled physician.

Under the system of the past the physician could treat the patient as little or as much as he saw fit, and be accountable to no one for the protection of society against the refractory or careless patient. The patient, on the other hand, could stop his treatment and ignore precautions against the exposure of others whenever the whim seized him. Up to the time of the war, the American health officer, with his brilliant record for conquering such lesser evils as yellow fever, typhoid fever, smallpox and malaria, felt that the venereal diseases were entirely outside his field. He accepted the dictum that they were "different." As a result, venereal diseases maintained their prevalence and the cases were not even counted. Society paid for its neglect in wrecked homes, childless marriages, invalidism, blindness and insanity. And still venereal diseases were "different."

Out of the war, along with all the suffering and destruction, has come much good. One benefit has been a change of this attitude and the creation of an American plan for banishing the vast amount of ill-being and pain and death caused by venereal diseases. This American plan is an entirely new concept. It is not new in any one part, but new in its combination of all the consistent, worth-while methods, and new in that it squares with the highest American standards of upright living. And it is sound in its sociology as well as in its preventive and curative medicine.

If the American plan is to live and develop steadily into a better and still more effective plan of the future, the people of America must understand it. The silence of the leaders must be broken and their mouths must utter the truth with understanding. The lawyer and the statesman, the teacher and the clergyman, need more than the selected data which are scattered about with popular propaganda. They should have ready access to those fundamental facts about venereal disease on which successful methods of control must rest. To present these facts Dr. Stokes has prepared this book. To make them widely available the United States Public Health Service has published a large edition and is sending it out to the teachers and leaders of the people—particularly the clergymen with their wonderful opportunities for warning, comforting, and advising.

The plan was born with the war. Those high in authority were prompt to see the need to forestall the debauching and disease-breeding conditions which were wont to arise in the neighborhood of camps and follow in the trail of

armies. Said Newton D. Baker, Secretary of War, in a letter of May 26, 1917, to the Governors of the States and the State Councils of National Defense: "We cannot allow these young men, most of whom will have been drafted to service, to be surrounded by a vicious and demoralizing environment, nor can we leave anything undone which will protect them from unhealthy influences and crude forms of temptation. Not only have we an inescapable responsibility in this matter to the families and communities from which these young men are selected, but, from the standpoint of our duty and our determination to create an efficient army, we are bound, as a military necessity, to do everything in our power to promote the health and conserve the vitality of the men in the training camps." Likewise did Josephus Daniels, Secretary of the Navy, speak unequivocally on the responsibility of the state and national governments, for the protection of the sailors.

The problem was attacked with vigor. Commissions on Training Camp Activities were established by the War and Navy Departments. They cooperated with the Surgeons General of the Army and Navy and Public Health Service in keeping conditions wholesome around the camps and training stations. Liquor and prostitution were suppressed in wide zones around places of training. Red-light districts were closed. Healthful recreation was made possible in town and in camps. Athletics, books, music, and dances were arranged for. The life of the soldier was made as normal as camp life and rigorous training would allow.

But this was not all. The soldier himself was taught the dangers of venereal diseases and the advantages of a continent life, through lectures, exhibits, stereopticon slides, and most vividly by motion pictures.

The civilians living near army camps and in communities engaged in war industries were bombarded with appeals for cooperation, and they usually gave it unstintingly. Clinics were established and hospital beds provided for the treatment of venereal diseases, even under quarantine when that was necessary to protect the public health. The United States Public Health Service and the Red Cross maintained venereal disease clinics in extra-cantonment areas for the purpose of cutting down the incidence of venereal disease by curing the sick, and in this way reducing the health-hazard of the soldiers. For soldiers who had become infected, or who had been exposed, prompt and efficient treatment was provided by the army. Soldiers in infectious stages of venereal diseases were kept in camp as an added protection to the civilian community.

In these ways much disease was prevented, but the draft army soon provided some revealing figures that called for different efforts. It was found that most of the cases of venereal disease among our soldiers were contracted before the men came into camp. In fact, over five-sixths of the venereal disease treated in the army in America up to the time of the armistice, was acquired before the boys put on the uniform. This evidence showed that the environment of the home town was more dangerous to the health of young men of draft age than the carefully guarded surroundings of the camp.

And then began the fight to protect the soldier of anticipated future drafts. The campaign had to be carried to all communities, whether or not they were near army camps. State boards of health widened their activities. Congress recognized the problem and created a Division of Venereal Diseases in the Public Health Service, and also an Inter-Departmental Social Hygiene Board to correlate the venereal disease control work of the War, Navy, and Treasury Departments. Over four million dollars were appropriated to carry out measures for control by the government and to assist the states in financing the work being initiated by their boards of health.

Under the leadership of the new division of the Public Health Service, further developments were rapid. Nearly all the states made venereal disease reportable, with due precautions for secrecy in the interests of the patient. There developed a widespread movement for the establishment of clinics in which the best of treatment could be made available to the many who need it but cannot afford the high cost of the prolonged treatment necessary for the cure of syphilis and chronic gonorrhea.

With all these measures aimed at disease prevention, there has been arising a feeling of sympathy for those who are suffering from venereal disease. A deep-rooted and unreasoning antagonism is being replaced by understanding and a desire to help. Social service by trained workers is bringing to the clinics people who are diseased, following up those who have dropped from view before their cure was completed, and offering hope of health to the infected families and associates. Experts in constructive institutional work are taking up the task, persons experienced in dealing with those who require restraint and training and encouragement, as well as medical care. And throughout it all there has been a hopeful optimism not often seen among those who deal so often with the degenerate and the prostitute.

The prevalence of venereal disease among soldiers in the United States and in the expeditionary forces has been very low, much lower than had been expected on the basis of the earlier experience of other armies in the conflict. In addition to the prevention of new cases of venereal disease, the amount of venereal disease in the army was reduced by the treatment of many thousands of men who had contracted their disability in civil life and would have continued to spread infection if released from the army untreated.

What was done to keep the soldier fit should be done year in and year out for the health, efficiency, and well-being of every young man and young woman of America. They must be taught, guided and protected, not only through individual attention, but especially by the correction of vicious influences in the community and the creation of an environment which is wholesome and stimulating to better living. The war has furnished a successful demonstration. May its lessons not be forgotten.

Under the leadership of the Public Health Service the state boards of health are working and planning for venereal disease control. People are organizing in many communities to resist any attempts of the tenderloin influence to bring back the old conditions of vice recognized and disease rampant.

The first duty of all who wish to take a hand in the fight is to inform themselves so that they may lead and help others intelligently. And this brings me again to the volume which Dr. Stokes has prepared, not so much for the benefit of the readers themselves as for the welfare of the much larger body which will be influenced through their words, example, and direct assistance.

Venereal diseases have at last beeen recognized as prevalent, destructive and preventable. They have been brought into the open and they cannot stand the light.

WILBUR A. SAWYER,

Major, Medical Corps, U. S. A.

Washington, D. C.

April 3, 1919.

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SYPHILIS.

PART IV.

THE SOCIAL, PSYCHOLOGIC, AND ECONOMIC BACKGROUND OF SYPHILIS AND GONORRHEA.

In the past fifty years the socialization of medicine has paralleled the centralization of commerce and the organization of labor. It is no longer possible for the individual physician to maintain the isolation and the arbitrary powers and responsibilities which were his in primitive times. The advance of both the art and the science of medicine has compelled the development of partnerships and group practice, in which the knowledge of one man supplements the lacks of another, to the advantage of the sick for whom and upon whom they work. As this idea of cooperative effort develops within medicine itself, a new form of relationship in the maintenance of human welfare appears upon the horizon. A partnership between intelligent and well informed public opinion and the physician as leader is the logical ultimate expression of the trend of the times. Medicine is beset with problems whose solution is impossible except by the widest cooperation and the broadest understanding imaginable. The physician as a leader acting alone is helpless. It was said of the Roman legion that its tremendous effectiveness as against the phalanx was due to the fact that every man in it was an accomplished warrior who could, if alone, give admirable account of himself. To make every intelligent man, woman and child a legionary in the organization of the public health, some of the knowledge so long sedulously kept as the property of the profession of medicine must be imparted to the rank and file.

One by one the greatest scourges of the race are succumbing to this new strategic method. Malaria and yellow fever are giving way not alone before the advance of medical knowledge, but also before the popularizing of that knowledge which makes every day people intelligent cooperators in the campaign. Tuberculosis mortality is falling, not alone because of new conceptions in its treatment, but because of the tremendous force of public knowledge and sentiment. In time the same fate will await cancer, syphilis and gonorrhea.

Syphilis and gonorrhea perhaps more than any other of the great plagues which scourge humanity, need the new strategic method. Medically we are armed to the teeth against them. All the paraphernalia of battle is at hand. Against these two diseases we can move with irresistible force on the dawn of the day of human enlightenment. That dawn is very near. Once we can open the eyes of the every day man and woman to see the enemy as he is, his course is run.

There is no device known to a cruel, unscrupulous and implacable opponent which has not been used against us by the twin scourges. They have crept into our houses and murdered the innocent and the helpless. They have appeared to many a sincere well-wisher of mankind not in their true semblance of brutal, wanton and savage mutilators and destroyers, but in the disguise of well-wishers, guardians of the moral life, painful but just chasteners of iniquity. Many a sincere but uninformed or unthinking man or woman has shuddered to think that these things must be, and yet feared to protest against them, refused even to know about them lest with one horror removed or explained away, they should confront a worse one. We have lived the nightmare of one who dreams that his awakening will be his death, and dares not open his eyes.

Syphilis and gonorrhea are not what public misconception makes them. Quietly and dispassionately examined, they can be easily seen to be no more disreputable than other disease enemies of the race. They have likewise no supernal power or commission. They are no more repellent to the senses than many

another ailment. There is nothing in their origin which gives us cause to refuse to know about them. In fact an understanding of them is the more obligatory upon us because they undermine and attack the citadel of life itself. The clothing of mysterious words and allusions, of shame-fast silence, of false disgrace, of painted horror that surrounds them is their cloak of darkness which protects them from the vengeance we would visit on intimate and secret enemies. Like murderers who mingle with the crowd upon the very scene of their crime, syphilis and gonorrhea stand so near to us that although they have attacked our very germ plasm and our physical immortality, we have not known them for what they are.

The movement for a new conception of these two diseases, which will make the common man a legionary, and will enlist against syphilis and gonorrhea all the force of an enlightened public sentiment, begins with a choice of words. The armor of the third and fourth great plagues is words. For generations syphilis and gonorrhea have been called venereal, until the mere use of the term throws a cloak of odium over any subject to which it is attached. People are afraid of it, afraid of being shocked, afraid of being besmirched, of having the loathsome thrust upon them. And all this repulsive connotation, wholly uncalled for as it is, plays into the hand of syphilis and gonorrhea. Labels that attract lead us to scrutinize the object. Labels that repel, turn away our gaze and foster ignorance. Much of our public attitude toward syphilis and gonorrhea, our false modesty and mistaken shame, our ultra-sexual point of view, is the product of false labelling. To look at syphilis and gonorrhea with the verbal veil withdrawn is not to turn to stone before the Medusa gaze, but to be inspired to dash at the monster and demolish it. To withdraw the veil and permit people to face the facts, is the first function of a public health movement against the "diseases of vice."

A dispassionate and calm analysis; good Anglo-Saxon words; the simple dignity of truth-telling; iteration and reiteration, will yet awaken a sleeping public thought to the enemy within our gates.

PART I.

THE NATURE OF THE GENITAL INFECTIONS.

CHAPTER I.

THE SOURCE OF THE GENITAL INFECTIONS.

The Genital Infections Defined.—There are more than merely psychological grounds for avoiding the tendency to group the four so-called "venereal diseases" syphilis, gonorrhea, chancroid and gangrenous balanitis, together under a single head. The history of these four infections is rich in examples of the retarding effect on knowledge, of a premature inclusion in one conception of several different ailments merely because of the accident of their beginning on the same part of the body. To be sure, syphilis, chancroid and gangrenous balanitis begin as sores. Yet the latter two of the sores have ahead of them when they appear, only a brief and usually a trivial history. Prompt and complete recovery, without any more than local damage to the genitals, is the rule. The first sore of syphilis, on the other hand, has from the moment of its appearance, a significance which reaches potentially into every tissue of the patient's body and into every hour of his succeeding days and years. It reaches beyond him into the lives of his intimates and his friends, into his career and all that it may touch, and through the children that may or may not be his, it lays hands upon the future of the race. Gonorrhea instead of beginning as a sore, begins as a discharge of pus from the canal through which the urine flows, or in women often as an inflammation of some deeper portion of the genital tract. In the large majority of cases its field of action is local, the damage that it does the race being inflicted mainly through its power to injure and incapacitate the structures that create and bring children into the world. Syphilis in the overwhelming proportion of cases carries consequences for the individual that have a quality of seeming remoteness, a potential gravity and an element of surprise which make it stand alone among all human ailments. Between the tiny genital sore and the doddering victim of syphilitic insanity there is a vast gulf of alarms and tragic possibilities. Gonorrhea is more of an inch-by-inch disease, less versatile and less dramatic than syphilis, and in proportion to its wider distribution, perhaps less inexorable and implacable. It is none the less a tenacious, stubborn and mean-spirited foe.

It will be worth while to bear in mind that for the broader outlook, the genital diseases are really only two in number—syphilis and gonorrhea. Chancroid and gangrenous balanitis are incidents in the diagnosis of syphilis. Gonorrhea is a wholly different problem from every point of view. There is no longer any need to speak

of the venereal diseases. If we must choose two words, let it be the two that have the ring of frankness and the grace of simplicity and directness—syphilis, gonorrhea.

General Principles of Transmission of Genital Infections.—Certain fundamental facts apply no less to syphilis, gonorrhea and their satellites, chancroid and gangrenous balanitis, than to such diseases as diphtheria, tuberculosis and pneumonia. All of them are infections, each produced by its own specific germ. They are transmitted by the physical contact of the well person with some intermediate object, or with some part of the body of the sick one, on which are present the germs causing the disease in question. If there are germs of syphilis in the mouth, contact with the mouth or with objects containing secretions from the mouth will give the disease to a healthy person. The transmission of disease by intermediate objects is dependent upon the length of time and the conditions under which the germ in question can live outside of the body. Unless the germ is carried in droplets of saliva, as sometimes happens in certain diseases, there is no vague blowing about of the poisonous agent in mysterious ways from place to place. The contact is physical, the infection by actual transfer of germs.

Individual Resistance, Peculiarities of the Germs.—A third factor enters into the transmission of infections, in addition to the infected body, and the intermediate article carrying the germs. This is the so-called resistance of the well person—his ability to fight off germs that try to gain a foothold on him. While this is a large factor in protecting well people from certain diseases, it plays a little understood but probably very minor role in protecting healthy persons from syphilis, gonorrhea and chancroid. To these diseases practically everybody seems to be susceptible—at least everybody can acquire them, although in some the infection may run a milder course than in others. The great factor which, in the last analysis, protects humanity from the practically universal spread of syphilis and gonorrhea is not the virtue and chastity of some as distinguished from the viciousness of others, although, to be sure, foolhardy exposure increases the risk of acquiring these as much as any other infections—it is essentially the biological characteristics of the germs themselves that save us. Syphilis and gonorrhea are genital diseases, but not because some far-seeing power set them as watchdogs at the gate of righteousness. They are transmitted by sexual intercourse and by intimate contacts between person and person (not necessarily man and woman) because, like the homely potato, the germs of these diseases need a certain soil on which to grow. These germs are vegetables, so to speak, and if the conditions can be made unfavorable for them at the spot on which they are planted, no

amount of vice and immorality connected with the planting can persuade them to grow. Correspondingly, innocence, virtue and ignorance have no power to retard their growth upon the parts of the body where they find conditions favorable. The absence of air in the genital tract of a saint is as favorable to the growth of the germ of syphilis as in that of a sinner. It makes not an iota of difference whether the cause is just or unjust, the victim innocent or besmirched. No one would go so far as to say that collateral habits of drunkenness, uncleanliness and bad living such as are prevalent among the vicious, do not favor infection with these as with all other contagious diseases. But there is no connection so direct as to justify the title of venereal as applied to any disease to mark it as a punishment for sin.

Intimate Contact and Moisture Necessary.—For the transmission of syphilis and gonorrhea in general, intimate contacts between *moist* surfaces are essential. Intimate contact between the male and female genitalia however, is in no wise essential. A syphilitic chancre on the cheek from an infected razor cut, or gonorrhea in infants from contact with an infected diaper is just as much syphilis or gonorrhea as the sexually transmitted type that so completely occupies the horizon of popular misconception. Dry materials do not transmit these diseases, nor does infection with them tend to follow invariably upon casual contacts. The germ of gonorrhea will not grow as a rule upon the skin, while that of chancroid will, and that of syphilis may if the conditions are otherwise favorable. Door knobs, the walls of rooms, linen and blankets that have been washed, for example, do not harbor them. Mild antiseptics usually destroy them. Yet there is about them, and about the germ of syphilis especially, an uncanny versatility. Only too often, where every precaution has been taken they manage to get a foothold through some trivial slip, and where they are least expected, they appear. In fact it is too often those ignorant of facts and risks alike who are betrayed in the sacred intimacies of life, instead of in its unworthy moments. The human genital infections are parts of a biological problem, not a moral issue. Dourine, a disease of the horse which while caused by another germ than syphilis, has a remarkable resemblance to it in its manifestations and its sexual transmission, can hardly be conceived of by any reasonable person as a special device for guarding that animal's moral life. Yaws, the twin brother of syphilis in man, a tropical disease so like it in every respect, even to the germ causing it, that it might almost be called syphilis, has not developed the unsavory reputation of a "venereal" disease. Larger considerations such as these soon disabuse even the prejudiced of the idea that there is moral value in the genital infections

and that they are needed to safeguard us from license. They are dangerous contagious diseases. Their value to mankind as a source of inspiration and uplift is nil. Their cost in undeserved wretchedness, in innocence put to torture, in physical and spiritual degradation is immeasurable. An enlightened conception of duty to the public health demands that we blot them out.

CHAPTER II.

THE GENITAL SORE.

Chancroid, and gangrenous balanitis, are mere appendages of the problem of syphilis, and derive practically all of their significance from the fact that being sores on the genitals, they may conceal beneath a seemingly harmless exterior, a much graver infection. Syphilis begins with a pimple, ulcer or sore at the point where the germs enter the body. While it has long been recognized that mixed infections with chancroid and syphilis could occur, it was not until the discovery in 1905 of the germ causing syphilis that a reliable and widely applicable method of distinguishing a syphilitic from a chancroidal sore by the microscope was developed. This will be more fully discussed in connection with syphilis.

Antiquated Distinctions between Syphilitic and Chancroidal Sores.—Physicians of the older school, and unfortunately too many younger men, have been taught an elaborate lore or diagnostic system for distinguishing chancroid from chancre (syphilis) on the score of the appearance of the ulcer alone. By this method, of course, typical text-book picture chancres may be recognizable, but in general it may be said that the first sore of syphilis is quite as often unlike the pictures in books, as it is like them. The effort to distinguish the two by their appearance has in general done vastly more harm than good, since innumerable syphilitic sores have been mislabelled chancroids by victims who have picked up a little half-knowledge on the matter, and by physicians not familiar with the very large margin of error in such judgments. It may be absolutely impossible to distinguish the sore marking the beginning of syphilis from any one of the half-dozen other types of sores which may appear upon the genitals. "Hair pimples," "warts," "chafes," the bites of the itch mite, the blisters of a "cold sore," the plainest and most undoubted chancroid that ever was, may each and every one be the first sore of syphilis. When a sore of any description appears upon the genitals of a person who has had sexual intercourse or intimate contact with another, the first problem of the physician is to prove that that sore is not syphilitic.

Modern Methods for Recognizing Early Syphilis.—There are only two ways of proving that a sore is not the beginning of syphilis. The first of these is failure to find the germ of syphilis after repeated careful examinations with the microscope. The second is repeatedly to test the blood of the patient for evidence of syphilis through a period of not less than three months from the time the sore first appeared. The second of these procedures is never to be made a substitute for the first, since a sore can be proved to be a chancre, the

beginning of syphilis by microscopic examination, long before it can be proved to be such by the blood test. Neither is it permissible to substitute mere waiting for a "breaking out" or eruption to develop, since the blood test usually becomes positive first, and the eruption may be so trifling as to be overlooked or misunderstood. In the modern treatment of syphilis, hours count, and to lose them by waiting for a blood test to show the disease because one is too ignorant, indifferent or inexperienced to find the germ itself in the secretions from the sore, is fast becoming criminal negligence.

Early Examination and No Previous Treatment.—In order to make it possible to prove the nature of a sore by microscopical examination, and the finding of the germ, two things are absolutely essential in addition to the necessary equipment and knowledge on the part of the doctor. The first is that the sore shall have had *no treatment of any kind,* whether applied to the sore, or given to the patient internally. The second element is time. The sore must be seen early. The germs of syphilis are fragile and yet tremendously tenacious. A little dusting powder of almost any kind, a wash even of boric acid, may kill or drive them from the surface of the sore. But in the deeper tissues, where they are much harder to reach and may not be found at all, they may continue to thrive. The sore may even heal over above them, and the patient yet develop syphilis. If the sore has not been treated, all that is necessary to obtain them is to clean off the surface with gauze or scrape it very lightly, and the serum that comes out will swarm with them. It is safe to say that every year tens of thousands of men unknowingly throw away a one hundred per cent possibility of being cured of syphilis by listening to some friend who advises them to "dry it up with calomel powder," or by accepting the ever ready advice of Joe the drug clerk at the Fixall Store, only to find a few weeks or a few years later that the disease has them by the throat. Too often the doctor himself is the man who "burnt it off" and let it go at that, or allowed the patient to believe that healing means "chancroid" and not syphilis. Emphasis, too, must be laid upon the word *repeated,* wherever it occurs. Repeated microscopic examinations, three or four—repeated blood tests, so as to catch the first signs of the disease in the blood, are part of the modern requirements. Their expense is trifling compared with the expense of the additional months and years of treatment and the increased risks that delay in recognition of a syphilitic infection entails.

The Microscopic Examination is Essential.—Let it be said again, that there is no way of describing or picturing chancroid and gangrenous balanitis which can exclude the possibility of their being the beginning of syphilis. Whether the sore is hard or soft, single

or many, painful or painless, pinhead or silver dollar size, the day is passed when physician or layman can look at it, pinch it, feel the kernels or glands in the groin and dramatically say the fateful word that brings joy or lamentation, "chancroid" or "syphilis." No patient should be content with such an examination, or with the innumerable names such as "chafe," "cold sore," or the laugh and "pooh-pooh" which may be offered him by friend or doctor as a reassurance. Experts may occasionally be able to judge cases on their merits and decide without examination that a group of blisters on the genitals of a man or woman who has not had sexual contact is not syphilis. But in general the less leeway the better and the more unvaryingly the patient demands and the physician carries out the proper microscopical examination of genital sores, followed by the repeated testings of the blood if the germs are not found, the more syphilis will be recognized in time for cure and the fewer men will have the experience so distressingly common in these days, of finding that a mere label like "chancroid," glossed over the syphilis that wrecked them when they reached their prime. The public has a duty in demanding service of this type from the medical profession, quite as much as the profession has a duty in furnishing it, and the pressure of a public conception of what the doctor ought to do in such a case will hasten the day when the doctor will be ready and able to do it.

Reassurance for the Timid.—Positive statements like the foregoing, true though they may be, have a trick of upsetting the nervous and timid, usually those for whom the admonitions are least intended. For the benefit of such, let it be said that the presumption of syphilitic infection is proportional in some degree to the amount of exposure, and that men and women who are continent are not at all likely to develop genital sores or gonorrhea from the many harmless outside contacts with toilets, door knobs, bathtubs and people, which nervous persons are inclined to fear.

The True Chancroid.—A true chancroid, or a gangrenous balanitis, in spite of the relative insignificance into which it subsides, once the question of a syphilitic element is eliminated, can none the less be an exciting and highly disagreeable affair. Little sympathy need be wasted on the average chancroid, or on any gangrenous balanitis, since they are both distinctly venereal in the overwhelming majority of cases[1] and filthily so at that. While the average chancroid runs the course of an infected ulcer, which under proper treatment becomes clean and heals with only a small amount of scarring, small chancroids especially have a habit of sending infection up into the

[1] There seems to be a type of gangrenous ulcer of the genitals which is non-venereal, and there are forms of genital ulceration in women (ulcus acutum vulvae) which have no connection with chancroidal infection and yet closely resemble it.

kernels in the groin, which swell, become intensely painful and usually have to be lanced—a "bubo," as this complication is called. Larger chancroids leave ineradicable labels in the form of loss of tissue and scarring as reminders. The common chancroid often, and gangrenous balanitis almost always, show a tendency to spread. A little unwise interference, and often no apparent cause, is sufficient to make them violent. Such a "phagedenic" or devouring chancroid may in a few hours leave the testicles hanging by shreds, the remainder of the genitalia nothing but ragged bloody stubs, and not content with this, will march up onto the abdomen, melting everything before it. Gangrenous balanitis produces equally horrible mutilations. The chancroid certainly lacks nothing in physical characteristics when once aroused to make it a means of employing fear for educational purposes. Its treatment in serious cases, too, causes physical agony that comes as near the German conception of frightfulness as any single experience vouchsafed a human being in peaceful life. Even in the serious, multilating chancroids, in which, when the patient is first seen, conditions are such that no microscopical examination for the germs can be made with any hope of success, the ever present possibility of an underlying syphilis must not be overlooked, and the patient cannot be regarded as well until blood tests taken as late as four months after the infection have shown he does not have syphilis.

PART II. GONORRHEA.

CHAPTER I.

HISTORY, CAUSE AND PREVALENCE.

Gonorrhea a Localized Resistant Infection.—We pass now from the prelude of the local phase of genital infections to the consideration of two of the greatest modern problems in disease. Of the two, gonorrhea presents the more depressing picture. Its enormous prevalence and the terrible and tragic costs which it entails upon uncomprehending mankind, give it a leading place among the scourges of the race. Its bulldog obstinacy, and slowness of response to treatment, its ability to baffle every resource brought against it, and its trickery, seem to give it all the attributes of an evil personality. Curable to be sure, and usually cured under prolonged skillful direction, we are not wholly able to lay our hands on the factors that make success in its treatment. "Nature" seems to bear too large a hand, and medical skill to have too little power to give work with the disease the fascination there is in treating syphilis. There is little of the dramatic about its treatment. Dogged persistence on the part of the doctor and a liberal share of knowledge as to what not to do as well as what to do, with a cooperation from the patient which is rarely forthcoming, constitute the essentials of the medical management.

Gonorrhea is an infection due to a germ which on its appropriate tissue soil produces inflammation and the formation of pus or matter. It is essentially a local disease of the genital tract in both the male and the female. It may extend to the body as a whole in a limited percentage of cases, causing usually, however, only a restricted range of symptoms. The germ of gonorrhea thrives upon certain tissues in addition to those of the genital tract, notably those of the conjunctiva of the eye. Gonorrheal inflammation of the eye or gonorrheal ophthalmia in childhood is so common and so terrible a disease as to deserve to rank as a scourge in itself alone.

The History of Gonorrhea.—Gonorrhea is a disease of ancient lineage. In the Brugsch papyrus attributed to the year 1350, B. C., there appear among the remnants of an Egyptian system of medical practice, references to symptoms and treatment which would seem almost certainly to apply to gonorrhea. Jean Astruc described it in 1736. The disease emerges from the obscurity of the Middle Ages in time to be confused with syphilis by such men as Paracelsus, a misconception which persisted through the next three centuries and did much to retard the progress of knowledge. Morgagni during the early eighteenth century gave an account of the complications of gonorrhea, which, in view of the miconceptions of his time, was remarkable for its insight and completeness. In the late eight-

eenth century the immense influence of John Hunter gave renewed impetus to the already existing misconceptions of the relations between syphilis and gonorrhea. With commendable but unfortunate courage he inoculated himself with the pus from a patient with gonorrhea. It happened that the patient, as we now know, had syphilis also, and Hunter developed, not gonorrhea, but syphilis. He believed from this experiment that the two were identical and the weight of his medical authority was such that it took another generation under the leadership of the great Frenchman, Ricord, to set the matter right. While Rollet in the middle of the nineteenth century had insisted upon the special identity of gonorrhea, it remained for Neisser the famous urologist and syphilographer of Breslau to identify, in 1879, the true cause of gonorrhea. With this discovery—one of the really great facts in the history of medicine—the modern methods for the recognition of the disease in early, quiescent and obscure cases were developed, and the microscope assumed control over the field in precisely the way that it did later in early syphilis. The discovery of the germ did not, however, give the cue for the brilliant triumphs in treatment that were made possible in syphilis by the recognition of the spirochaete or spiral germ which causes that disease. The non-transmissibility of gonorrhea to animals has decidedly increased the difficulties of its study, and has probably delayed the progress of knowledge on treatment as much as the treatment of syphilis has been advanced by the fact that it, unlike gonorrhea, can be given to certain animals on whom it is possible to carry out experimental work.

The Gonococcus, the Cause of Gonorrhea.—The gonococcus of Neisser, as the germ of gonorrhea is called, is one of a type of round or spherical germs known as the cocci, which include among their numbers such common enemies of humanity as the pus germs that produce boils and abscesses, and the germs of pneumonia and of spinal meningitis. In fact the gonococcus seems to bear a striking resemblance to the pneumococcus and the meningococcus both in appearance and in the reactions which it sets up in the body tissues. Pus, which is made up of the white cells of the blood that constitute our first line of defense against certain germs, is usually produced in abundance by a gonococcal invasion during its early or acute stages. Gonococci are very minute, and can be found in the pus only by the higher powers of the microscope, after it has been stained with certain dyes. The germs are incapable of motion and lie either free in the pus, or more often inside the bodies of white blood cells that have devoured them in their struggle against the invaders. In the latter situation they usually occur in pairs, flattened somewhat against each other into what looks for all the world like a

coffee-bean. Three of the characteristics of the gonococcus provide the quickest and on the whole, most reliable method of identifying the germs in recognizing or treating the disease: (1) their reaction to a certain method of staining (Gram stain) in which the gonococcus does not take the stain itself but takes a "contrast stain," while the other germs of similar appearance take the original stain, (2) their presence within the white blood cells, (3) their typical coffee-bean shape. Gonococci can be grown on certain culture media in glass tubes, but this method of identifying them is of secondary importance except in special cases.

The Microscope Essential in the Treatment of Gonorrhea.—Gonorrhea can only be positively identified by the physician after a miscroscopic examination and it is the presence or absence of the germ when looked for in the way described that determines whether or not a patient who has had gonorrhea, is well or still has the disease. Realizing this, it at once becomes apparent that the same principle applies to the detection of gonorrhea that applies to syphilis. It cannot be said too often or emphatically that the finding of the germ by the microscope is the essential point in the game both before and after treatment. The patient who does not have the benefit of such examinations or who does not abide by their outcome, places himself voluntarily or through ignorance at the mercy of medical practice little better than that of the Dark Ages. The physician who diagnoses and treats gonorrhea without the use of the microscope never knows when his patient is free from the infection. Such a physician may be directly responsible for all the disastrous sequels to an uncured gonorrhea that may develop in anyone who is so unfortunate as to entrust himself to his care.

The Prevalence of Gonorrhea.—The real significance of gonorrhea will be better appreciated, if before taking up its symptoms, some figures are offered to show the magnitude of the problem. It should be remembered that most of these figures are estimates, based to be sure on large experience, but lacking the assured correctness of properly gathered statistics. Accurate vital statistics on a disease such as gonorrhea which has always been concealed as a secret and shameful thing, are, of course, in their infancy. The new point of view toward the disease as a public health problem will in time lead to definite understanding of its prevalence.

There is a distinction to be emphasized between the number of persons who have active gonorrhea in a population or a class at a given time, and the percentage of persons who have had it. The statistics are modified by the fact that since gonorrhea is curable and no immunity is conferred by an attack, one person may have it a number of times. Another element of inaccuracy is introduced

into the figures by the ability of a gonorrhea to remain latent for considerable periods, only to flare up like a new attack on suitable provocation.

Gonorrhea in Men.—Probably the highest single estimate of the prevalence of gonorrhea is that of Noeggerath, which was made before the discovery of the germ by Neisser. He estimated that 80 per cent of all men had or had had gonorrhea—figures which are now generally accepted as too high. Morrow, and Forcheimer, on the basis of a large experience with conditions in the United States, propose figures varying from 51 to 60 per cent of the adult male population as having had the disease. Forcheimer further states that 20 per cent of those infected have acquired the disease before their twenty-first year, more than 60 per cent before their twenty-fifth year, and more than 80 per cent before their thirtieth year is passed. Equally large estimates are given by various well-informed Europeans, notably German observers, such as Blaschko, Erb, and Pinkus. Getting at the matter indirectly, figures drawn from recent army experience indicate that gonorrhea is from four to five times as prevalent as syphilis. A very widely accepted conservative estimate of the prevalence of syphilis is 10 to 13 per cent of the adult male population, so that a possible prevalence rate for gonorrhea of from 40 to 60 per cent is not unreasonable. Estimates of the amount of active gonorrhea acquired by a large group of men in a given time can be obtained from the reports of the Surgeon General of the United States Army. In 1907, under an inadequate system of examination, the admission rate (proportion of men admitted to sick list) for gonorrhea, was about 12 to 13 per cent of the enlisted personnel. In the army the percentage has fallen steadily to between 5 and 6 per cent in 1915-16, owing to the efficiency of prophylactic or preventative methods introduced since 1911. The male civil population, which is not protected by the safeguards that surround the army, probably has a prevalence approaching the army rates during our recent mobilization. Chronic gonorrhea often escapes inclusion in statistical estimates, because it is not brought to the attention of physicians or medical officers.

Gonorrhea in Women.—Gonorrhea is estimated to be sixteen times as prevalent in men as in women on the basis of statistics which cannot, however, be accepted as conclusive. The lowest estimate quoted and one which is undoubtedly too low is probably that of Erb who maintained a number of years ago, that only 5 per cent of four hundred women whose husbands had had gonorrhea, acquired the disease themselves. No direct estimates of value exist, relative to prevalence in women, but an indirect conception may be obtained from the fact that 50 per cent of absolute and one-child sterility is

due to gonorrhea in women. The percentage of gonorrhea in women varies largely with their social status. Among the most refined types of unmarried women and girls it is probably negligibly small. Of the pregnant women in the public hospitals of a number of Continental cities, 20 to 25 per cent were said to have had gonorrhea. Prostitutes, professional or occasional, nearly all have it. The estimated prevalence of the disease in these types ranges from 70 to 95 per cent, as determined by various vice investigations, and by studies of delinquent women, such as that of Haines, who found percentages ranging from 75.7 to 98.2 in 500 cases.

It must be more than apparent, in spite of the obvious difficulty in interpreting figures which contain so large an element of speculation, that gonorrhea offers to the sanitarian a problem of the first magnitude. It is in very fact, one of the commonest of all significant diseases. It wholly outranks the large majority of contagious infections such as scarlet fever, smallpox and diphtheria, and even runs a close second to measles, the most contagious disease that affects mankind.

CHAPTER II.

GONORRHEA IN MEN. SYMPTOMS, TESTS FOR INFECTIOUSNESS.

For convenience gonorrhea as a disease may be described as it appears in men, in women and in children. It should not be forgotten that while there are differences between the three types, the same principles underlie the process as a whole. The differences are more largely due to differences in anatomical structure than to any other factor.

Acute and Chronic Gonorrheal Inflammation.—Gonorrhea as has been pointed out, is an inflammation. Like every disease in which inflammation plays an important part, it tends to pass through two stages—an acute or active early stage and a late, slowly progressive, inactive or chronic stage. If the acute stage of the inflammation is sufficiently violent, that is, if the body puts up a big enough fight, the germs may be so rapidly destroyed that a chronic state may be avoided altogether. On the other hand, if the body for any reason does not acutely resent the invasion or if something is lacking in its fighting mechanism or again if something is done to weaken its defensive powers during the acute stage, the germs are not killed off but manage to retain a foothold for a long time. The effect of their habitual presence is in a certain sense to make the body tolerant of or indifferent to them. It may grow weary of the fight, so to speak, and ceases to put up an active opposition. There is also perhaps, a difference between individual families or strains of the gonococcus, in the matter of ability to adapt themselves to the conditions which they meet in their host. Precisely as an invading army endeavors as rapidly as possible to convert the strategy of war into the strategy of diplomacy and peaceful infiltration, so a really clever and adaptable germ alters its tactics enough to persuade the body in course of time to put up with the inconvenience of its presence. With this process of getting accustomed the infection passes from an acute to a chronic phase. If the germ is sufficiently adaptable this chronic phase soon becomes so inconspicuous that the patient loses sight of it altogether. A draw or truce occurs between invader and invaded, which is by no means a victory for the body or "cure." Unless something happens to disturb the balance of the draw by weakening the body or stirring up the germ and provoking a "flare-up," a draw or chronic state may go on for months, or even several years before the infection dies out. On the other hand, it should not be supposed for a moment that the germs which are present in a chronic infection have lost their power to spread the disease. Many persons carry about with them the germs of pneumonia in the nose and throat. Only a few, however, have pneumonia as a result. In the same way

in the chronic phase of the gonorrheal inflammation, many persons may carry around the germs in their genital tracts without showing any active symptoms. As soon, however, as the germ is transferred from a person in whom it is being held in check to a new soil in a healthy person, it promptly sets up a new acute process fully as violent as that which originally developed in the carrier.

The Course of Acute Gonorrhea in the Male.—In order to appreciate the successive possibilities in the struggle between the gonococcus and the body it is necessary to recall the anatomy of the parts involved. In the man the secretions containing the germs enter the opening through which the urine escapes and the first sign of the beginning inflammation appears at this point within a day or a week after they have gained a foothold. The symptoms are prickling followed by burning in the urinary canal with burning and pain on urination. There is considerable redness and swelling of the affected parts and a discharge of thick, yellow pus from the urinary canal. In this pus enormous numbers of the gonococci can be found. The inflammation progresses backward along the urinary canal and in from 40 to 80 per cent of the cases manages to travel back the entire length of the canal into what is called the posterior urethra. The condition is then spoken of as a "posterior" gonorrhea.

Posterior Gonorrhea and the Genital Complications.—Posterior gonorrhea is a highly undesirable complication of the disease. When the inflammation extends this far, new and very painful symptoms usually develop. Furthermore, into the deeper part of the urinary canal near the base of the bladder open the canals which lead from the reproductive organs. If in a "posterior gonorrhea" for any reason the germ succeeds in traveling downward through these canals leading into the epididymis, a structure connected with the testicle, in which the male cells mature, it has done more than merely invade the man's tissues. It has invaded his future and his personal immortality. The inflammatory process which then develops, if it involves both testicles or their appendages, while it may not cost him his sexual powers, will be likely, then and there to destroy his power to father a child. When the inflammatory process which is evidenced by swelling and pain in the testicles, dies out or becomes quiescent, the man may never think of it again. In the later years of his life he wonders, not always with good grace, why his healthy wife has no children, as he listens to the clatter of the shoe heels of adopted youngsters on his stairs. Sterility is by no means a feminine monopoly and is only too often the heritage of masculine "posterior gonorrhea."

Causes and Complications of Chronic or Persistent Gonorrhea.—To describe all the symptoms of acute gonorrhea in the male would

crowd out other considerations of greater importance here. The average duration of the acute phase of the infection is about eight to twelve weeks. The discharge and active inflammatory symptoms and the burning on urination gradually subside. The painful erections, commonly known as chordee, also disappear. If, however, the smooth progress of the case has been interfered with by the patient's disobeying instructions or through his attempt to treat himself, or again, through the ministrations of an inexperienced or unskilled medical adviser, the acute phase results not in recovery but in chronic or persistent gonorrhea. In spite of the best possible care a small percentage of acute cases will become chronic. It is exceedingly important, however, since there are so many seemingly discouraging features about the entire situation with respect to gonorrhea, to emphasize here and again, the very favorable outlook for complete cure in the large majority of intelligently managed cases of gonorrhea. Complications and chronicity with delay in cure and prolonged infectiousness are not the fate of every patient who acquires the disease. They are the penalty of negligence, ignorance, and indifference in the overwhelming proportion of cases. The outlook in the treatment of the disease can be brightened in exactly the proportion that these unfavorable factors can be eliminated by raising the standard of public comprehension, by developing the personal cooperation of the patient, and by contributing to the efficiency of medical care.

Stricture.—A chronic posterior gonorrhea is an unfortunate complication from the standpoint of the man's future and of the public health. If the inflammation in the urinary canal itself persists, small ulcers are apt to form and these in turn on healing leave scars which shrink, reducing the diameter of the canal. Such a condition is called stricture. A stricture interferes with the passage of urine and predisposes the patient to complications attendant upon the infection of his bladder by other germs, and the passage of that infection upward through the duct which leads from the kidney to the bladder with resulting infection of the kidney. The last mentioned complication is, however, unusual. Prompt treatment as soon as any obstruction in the stream develops will prevent any complications.

Relapses and Flare-ups; "Gleet" or "Morning Drop."—In most chronic posterior gonorrhea active inflammation disappears, and the patient may believe he is well. From time to time, however, usually under the influence of alcohol or sexual indulgence, there may be a flare-up and a fresh discharge of pus of briefer duration than the original attack. This the patient may mistake for a new infection, easily cured. The continuity of the process between flare-

ups is, however, evidenced by the persistence of a very slight discharge in the form of a drop or two of a sticky fluid which appears at the urinary opening usually in the morning on arising. This is the condition commonly known as gleet, or "morning drop," and in this drop of discharge which the French have sardonically christened "la goutte militaire," gonococci can usually be found. Gonorrhea in this stage is not one whit less dangerous to others than is the acute infection. In fact, it is vastly more dangerous because when the patient reaches this stage he usually discards the restraints as to sexual indulgence which have been put upon him by the physician, with the result that he promptly infects his partner if she be not already infected. In the sociology of the disease "gleet" is its most important stage.

Chronic Gonorrhea of the Prostate and Urethral Glands.—The factors which make a chronic gonorrhea of the type described an obstinate and serious affair are easily understood. The urinary canal or urethra is lined with innumerable tubular mucous glands and pockets. Once the gonococci have invaded them in the march of the acute infection upward and backward through the canal and have gained the truce which chronicity represents, every resource in treatment may fail to dislodge them. The only outlook may be for them to die out of themselves, although modern methods with the use of instruments offer a better outlook than formerly. The prostate gland, a large gland which surrounds the posterior urethra at the point where it passes into the bladder, and which is practically always involved in posterior gonorrhea, has a structure which makes it a stronghold for the gonococcus in chronic cases. Chronic infection of the prostate gland often keeps the victim under the weather for long periods and threatens him while it persists, with the risk of having the gonorrheal infection spread through his blood to his joints (rheumatism) and other parts of the body. The discharge from both of these types of glands forms a part of the semen and thus maintains for long periods the risk of infection in sexual intercourse.

Tests for Chronic Urethritis, etc.—Chronic inflammation of the urethra may finally pass into a state in which it is apparently innocuous so far as the transmission of gonorrhea is concerned. It is, however, a difficult matter to tell a patient when such a condition is reached. The examination of a patient with chronic urethritis for evidence of a persistent gonorrheal infection involves not only the microscopic examination of the gleety discharge for gonococci, but also an examination of the secretions of the prostate gland, which may harbor the germs after they have disappeared from the rest of the tract. This is accomplished by staining and

examining the shreds which appear in the urine in cases of inflammation of the prostate. In some cases it may be desirable to massage the prostate gland with the finger through the rectum, and examine the urine after the discharge or secretion has been forced out into the urinary canal in this way.

In order to determine whether a persistent discharge is due to gonococcus infection or whether a gonorrhea is cured or not, it may be necessary to excite a fresh discharge by irritation of the urinary canal by the injection of a strong solution, or otherwise. This new discharge will contain cells from the glands and mucous membrane of the urinary canal. In these cells the gonococci can be found by the microscope if they are the cause of the persistent discharge, or if the case is not cured.

Morbid Fear of Gonorrhea.—The "morning drop" and "clap threads" in the urine, while, of course, of superlative importance in the proper estimation of the condition of a man who has had gonorrhea, occasionally furnish a nervous person with a cause for morbid worry which is out of proportion to their significance in his particular case. The wise course for a patient who is inclined to worry about floating objects or stringy mucus in his urine, or a drop of discharge at the urinary opening in the morning, whether or not he has had gonorrhea, is to proceed to the very best specialist available, and place himself unreservedly in his hands and accept his assurances as final.

Gonorrheal Nervous Prostrations.—Gonorrhea, perhaps because it involves structures so intimately associated with the nervous system and so richly supplied with nerves, gives rise to a peculiar mental and physical depression in from 5 to 10 per cent of its victims, a post-gonorrheal nervous prostration or neurasthenia, which drives them from pillar to post, seeking relief for weakness, vague pains, and inability to gather themselves together or to work. These symptoms are to be regarded essentially as after effects, and not as evidence that the gonococcus is undermining the patient's manhood.

CHAPTER III.

SYSTEMIC GONORRHEA AND GONORRHEA IN WOMEN AND CHILDREN.

Gonorrhea in women is the most embittering and tragic aspect of the disease. The overwhelming proportion of infections are innocent. A man has a chance, at least, to know what ails him. The woman, in the existing state of popular and even medical sentiment, is lied to at every turn of the way. Gonorrhea is a serious enough disease in men; in women it may be a disaster. Gonorrhea is usually cured in men. In women, while the disease if taken in time is curable, the problem is much more difficult. In women in general gonorrhea may run, on the one hand, a course so mild that although virulently infectious, the woman may never realize she has the disease; on the other hand, it may reduce her almost at once to a pitiable invalidism, or cost her her life.

Reasons for the Greater Seriousness of Gonorrhea in Women.—The greater seriousness and obstinacy of gonorrhea in women is explainable on comparatively simple anatomical and physiological grounds. The woman's urinary system is simpler than the man's, so that the full force of the infection is rarely felt here. Inflammation of the urethra and bladder may occur and are usually attributed to a "cold." The usual rule, however, is for it to fall with full force upon her sexual organs. The man's sexual organs are largely on the outside, so to speak—that is, outside the abdominal cavity. The woman's, while theoretically outside, open into the abdominal cavity at the mouth of the tube that carries the eggs from the ovary into the womb. A discharge of infected semen thus carries the enemy to her very vitals. It should be realized, however, in describing the complications of gonorrhea in women, that by no means every woman who is infected progresses step by step to the worst possible outcome. It is a notable fact that many women who acquire the disease have so few symptoms from it that they never realize that they are infected and do not seek medical advice. The condition may only be recognized incidentally in the course of other examinations. Such cases are a public health problem rather than a personal medical one. Not every case of gonorrheal infection in a woman results in sterility, or necessitates radical operations. On the other hand, there can be nothing gained by attempting to gloss over the dark side of the situation. While one may rejoice that many escape the worst, it is impossible to ignore the fact that enough women are wrecked by gonorrhea in one way or another to maintain an entire specialty in medicine—gynecology, which would become relatively a side issue in surgery

if the effects of gonorrheal pelvic inflammation and of abortion or miscarriage could be eliminated. Few have been found to dispute the opinion of Noeggerath, who first recognized gonorrhea in women as a definite and distinct condition, when he stated that 80 to 90 per cent of pelvic inflammatory disease and 50 per cent of absolute and one-child sterility in women is due to gonorrhea.

Course of Gonorrheal Infection in Women.—The successive stages and possibilities in a gonorrheal infection in the woman may be described as follows, always bearing in mind the fact that the process may stop so far as the patient is concerned, at any of the stages mentioned, and become arrested or chronic or may even die out of itself. It is the tremendous uncertainty attaching to the course of the disease and its outcome that makes it so important to understand all its activities.

In a variable percentage of cases the first symptoms may be from the urinary canal and bladder, as in men, but usually less severe. Not infrequently an abscess may form in a gland at the opening of the vagina.

When the gonococci in their ascent gain entrance to the genital tract and infect the neck of the womb (cervix), a discharge of mucous and pus from the vagina occurs, which is usually called leucorrhea or "whites." It should be emphatically stated, however, that not all leucorrhea is due to gonorrhea. In many cases, with the first menstrual period after infection, gonorrhea of the neck of the womb or the vagina is likely to be followed by infection of the womb itself, and then of one or both of the tubes that lead from the ovary to the womb. These tubes open, as has been said, into the abdominal cavity. A gonorrheal inflammation of a tube gives rise to symptoms suggesting an attack of appendicitis, although, of course, it may occur on the left as well as on the right side. Tubal inflammation usually results in the closure of the abdominal opening if both tubes are affected so that eggs can no longer pass down to the womb, and the woman becomes sterile. If both ends of either tube are closed, pus usually collects, forming a "pus tube," which may become chronic without rupturing, and usually has to be removed by operation. In severe gonorrheal infections all the steps described above may occur in rapid succession and the inflammation may then extend from the abdominal opening of the tube into the abdomen itself. The woman thereupon develops what is called peritonitis, an inflammation of the lining membrane of the abdominal cavity, a complication of the utmost gravity and occasionally fatal in its outcome.

Gonorrhea and Pregnancy.—For the woman with gonorrhea, pregnancy greatly increases the risk of a spread of her infection

and an exaggeration of all its manifestations. If the tubes carrying the egg to the womb have been distorted by a gonorrheal inflammation, but not closed, the fertilized egg may be caught in a pocket without reaching the womb, and the woman thus develops the child in the tube or the abdominal cavity. Such an accident may, of course, result at times from non-gonorrheal changes in the tubes. Tubal or extra-uterine pregnancy, so-called, may, if not quickly recognized and operated upon, result in the death of the mother from internal hemorrhage following rupture of the pregnant tube. If by any chance the child develops far enough, the condition of the organs in the abdominal cavity baffles description, and operative interference has little prospect of success. Any woman who notices that she continues to bleed after she believes herself pregnant, either irregularly or at the time when her menstrual periods would ordinarily be due, ought to have a thorough examination for the possibility of tubal pregnancy.

Gonorrheal Child-Bed Fever and Sterility.—In a woman with an acute, active gonorrhea whose tubes and womb are still normal, so that she can become normally pregnant, the delivery of the child opens the way to some of the most disastrous complications of the disease. After the passage of the child the womb is literally raw and bleeding, and the way is open (for infection to get a start) through the lowered resistance of the tissues, which is impossible under normal conditions. The gonococci in the neck of the womb seize the opportunity, in company with other germs, to make a whirlwind charge, and within a few days, or, perhaps, a few hours, the mother may be dead of "child-bed fever." While not all such patients die, those who survive are likely to be hobbling, pain-wracked cripples until a radical operation relieves them of all the damaged structures. Pregnancy in a woman with chronic, as distinguished from acute gonorrhea, is one of the chief predisposing causes of inflammation of the tubes and subsequent sterility. The pregnancy gives the woman a chance to have one child, but she never has another. This constitutes the so-called one-child sterility already referred to. That not all one-child sterility is due to gonorrhea must be borne in mind by critical inspectors of genealogical trees.

"Pelvic Inflammatory Disease."—Pelvic inflammatory disease is a general term employed to describe the condition following an extension of a gonorrhea from the more external female parts upward into the structures of the lower abdomen. Pus tubes, for example, are a phase of pelvic inflammatory disease. If the germ escapes through the wall of inflammation thrown up by the body against it, and gets into the surrounding tissues, every part and

structure in the neighborhood are involved in the fight, and intestines, omentum, and womb are matted together around an abscess that may later burst or be opened through the genital canal (vagina) or even the rectum. The treatment in cases of this type must often be the operation euphoniously called "hysterectomy plus bilateral salpingo-oophorectomy" or "pan-hysterectomy." After it the woman is usually told that a piece of one ovary was left (as it often is) so that she can still feel she is a woman, since that is all the evidence of the fact that she will ever have from that time on, except that she will continue to wear skirts. For the benefit of her husband they leave her a vagina; for the benefit of herself, perhaps, a piece of ovary. To hear such a woman, so defenceless-looking in her braided hair and ether jacket, whisper timidly as they wheel her, uncomplaining, up to the operating table: "I do hope they'll fix me so I can have a baby"; to see the skin and muscles gape before the sweep of the knife; to think that woman's thoughts for her, through an hour of ether hazè and hushed comment and the peculiar sibilant click of hemostats as the surgeon does his uttermost to cobble up the wreckage and save her hope; finally in despair he begins the quick swinging practiced movements that mean it all must go; and then to see her again a week later, after they have told her the ovary story, is an experience to make the hardest turn away his face.

Concealed or Latent Gonorrhea in Certain Glands.—Gonorrhea, regardless almost of the part of the genital tract in which the germ is deposited, seldom fails to invade certain glands, called Bartholin's and Skene's glands, which lie at the entrance of the vagina, and correspond to certain deep glands lying beside the male urethra. Few women whose married life begins with an abscess at the opening of the genital canal are told they have gonorrhea, although this is one of its characteristic beginnings. In these glands, even if abscesses do not form, the gonococcus may remain latent for long periods. The secretion from them is discharged upon the mucous membrane of the vaginal opening before and during intercourse, and though there may not be a living gonococcus in the canal, the woman may be free from leucorrheal discharge, and in all other respects seem healthy, there will be gonococci enough here to infect an army. An examination for gonorrhea in the woman which fails to include, besides a microscopic study of a smear from the urinary canal and the neck of the womb (cervix), smears from Bartholin's glands, overlooks entirely one of the strongholds of the infection.

Systemic Gonorrhea, Rheumatism, etc.—The description of gonorrhea in both men and women has thus far been that of a genital

infection. The invasion of the body as a whole by the gonococcus may be said to be rare, but serious. About one case in a hundred is thus affected and men more often than women. While the iris of the eye, the heart, the skin, the nervous system and other structures may be affected, these accidents are rare. The commonest systemic complication is involvement of the joints in the form of gonorrheal rheumatism. Gonorrheal rheumatism is a chronic and resistant disease which sometimes, although not usually, produces permanent crippling. Though it may come on early in the infection, many cases are due especially in men to the persistence of the disease in such structures as the prostate gland and the seminal vesicles, from which the germs escape into the blood, to be carried to other parts of the body.

Gonorrhea of the Eye (*Gonorrheal Ophthalmia*).—Under this head is included the form of gonorrhea of the eye already spoken of as gonorrheal ophthalmia, which while it can and does occur in adults, is overwhelmingly more common in children. The very first word that should be said about gonorrhea of the eye is that it can be *prevented.* The next word is, that if not prevented, it will probably cause blindness. Increasing knowledge of the first fact has diminished but by no means done away with the importance of the second. Gonorrheal ophthalmia is a disease of the innocents. The usual time of infection is in the passage of the child down the infected birth-canal of the mother. The bare thought of a little chubby child's bright eyes being ground through the filthy pus of a "clap" sickens a decent man. Yet this is exactly what happens, and its mother, all unknowing, is made the doer of it. Usually within twenty-four hours after birth, if a preventative has not been used, pus begins to form in the eyes, and with almost lightning-like rapidity the clear, bright cornea of the eye ulcerates, under the swollen, pus-filled lids, breaks through, and lens and all collapse into the opening. When the process subsides, the baby is blind. The mere statement that one-third of the blindness in asylums and one-half the blindness dating from birth is due to gonorrhea of the eye conveys no impression whatever of the tragedy. One has to see one of these little children, rocking back and forth in a railed-in chair, waving its hand between face and window because that flickering of the finger shadows across the twilight is all it will ever know of more than half of life, one has to see this thing, and watch the baby groping about on the floor and gurgling as it feels of your shoe-strings, really to know in the soul of him, what gonorrhea means.

Prevention of Gonorrheal Blindness.—The prevention of gonorrhea of the eye is accomplished by the use of a 1 per cent solu-

tion of silver nitrate, which is dropped into the eyes immediately after birth. In the vast majority of civilized countries this is now a universal and legally compulsory practice. It is required by most of our states, and it should be done on every baby born into the world, no matter what its parentage. The necessary medicine and directions for carrying out this protective measure can be obtained from any state board of health. The universal observance of this preventive measure will in time banish from the earth the gonorrheal blindness that begins in infancy.

A certain amount of ocular gonorrhea is due to accidental inoculations and to carelessness, and for this reason the care of the eyes is the first thing in regard to which a physician instructs his gonorrheal patient. Gonorrheal blindness may of course occur in children after birth, as a result of their becoming infected by handkerchiefs and articles of personal use from adults who have the disease. Special precautions about nurse maids, and in hospitals, about visitors, are essential. Sometimes in the form of gonorrhea known as vulvo-vaginitis, described below, the child may infect its eyes from its own discharges. Such complications are especially likely to occcur under conditions of crowding and bad hygiene. If treatment of gonorrhea of the eye is begun immediately after its onset and is expertly carried out in a hospital by skilled doctors and nurses, it may be prevented from going on to total blindness.

Gonorrheal Inflammation of the Genitals in Girl Children.—Gonorrheal vulvo-vaginitis is an elaborate Latin and Greek name for the most pathetic of all the tragedies to which woman-kind is subjected by this disease. Little girl children for some reason are extremely susceptible to the gonococcus. If it is deposited upon the external genitals from the fingers of a nurse, from a soiled or infected diaper, from an infected toilet seat or bed-pan, or in the passage of the child through its mother's birth-canal, it sets up immediately a gonorrheal inflammation which, however, rarely extends up the genital tract as in an adult woman. Its usual duration even under skilled treatment is years instead of months. No child having it should be allowed to leave an isolation hospital, for it is extremely contagious. It spells the end of the child's education unless there happen to be special classes held for such cases, as in some of the larger hospitals, since no child with it should be in school. It may mean the same thing for their life work, for their health and for their hopes of having children, that it does for their mothers.

Vulvo-vaginitis in Hospitals.—Gonorrheal vulvo-vaginitis is a scourge of infant hospitals, and asylums, and also of all places where children are crowded into close and undiscriminating con-

tact with adults, as when they sleep in the same beds with them, for example. So dangerous is it that no well-regulated public hospital admits any child, regardless of its antecedents, to a children's ward, without a smear of the genital secretions. Conversely the appearance of gonorrheal vulvo-vaginitis on a hospital ward is a reflection on someone, and should cause the physician and the nurses in charge many painful hours of self-inquiry. No better example of the savage heartlessness of the type of human being to whom "venereal" disease is outside the pale of consideration, can be imagined, than that furnished by an instance in which several little girls with hereditary syphilis in one of the largest charity hospitals in this country were knowingly placed on a ward with vulvo-vaginitis cases because gonorrhea and syphilis are both "venereal" diseases. In spite of the protests of the physician the little syphilitic girls who had had some chance for recovery from the syphilis, were ruined as effectually as if they had been raped, by being made to add the vulvo-vaginitis to their woes. The eccentricities of "Kultur" have indeed little to offer us that is not already in our midst, in the persons, the methods and the ideals of those who place the victims of "venereal diseases" outside the dictates of mercy and justice, because their ailments are "punishments for sin and badges of disgrace."

CHAPTER IV.

TREATMENT AND HYGIENE OF GONORRHEA.

The Difficulties of Treatment.—The treatment of gonorrhea bears the earmarks unfortunately familiar in more than one field of medical practice, in that many methods and a host of remedies mean doubtful ground. Nearly every expert in the management of the disease has his own peculiar way of going about it. General principles are recognized, to be sure, but they lack specificity, as we say. That is, no one or two remedies or methods can be certain of producing results in the overwhelming proportion of patients as is the case for example, in syphilis. No epoch-making achievements in the treatment of gonorrhea seem to have been recorded in recent years, although on the whole there has been a persistent improvement in methods and results. The growing appreciation of the importance of the microscope in the control of treatment is a signal advance. At times it seems as if the rather sordid peculiarities of the disease, the difficulty of getting the patient's cooperation when it is so vital to a successful issue, the lack of the spectacular, the tendency to obstinacy and chronicity, and the brilliant triumphs in the related field of syphilis had, in an indefinite way, deflected interest from a field in which compensations are few and the labor often out of proportion to the rewards. Yet nothing is becoming more apparent than that intelligent treatment of a gonorrhea is an essential to its cure, and should be adequately provided for in the interest of the public health alone, to say nothing of the patient himself. It rests with the future to devise means to bring home the importance of adequate care of gonorrhea and a more pressing sense of responsibility in regard to it, first to the public, and then perhaps to the medical profession.

Local and General Measures Employed.—In general an acute gonorrhea is approached by the use of local injections of various drugs into the infected canal, and in gonorrhea of the urinary tract by the administration of medicines by mouth which when excreted by the kidneys and passed out through the urine, have a favorable influence upon the structures involved. Preparations containing silver have a long established reputation for local use. The action of many of the drugs is less that of a means of killing the gonococcus than a means of making the soil unfavorable for it. In addition to this active medication, the diet of the patient calls for careful regulation, sexual excitement must imperatively be avoided, rest is usually essential for a time while the process is at its height, and alcohol, always particularly vicious in its effect on acute gonorrhea, must be absolutely abstained from.

The Patient's Cooperation.—It is one of the struggles of the physician who treats gonorrhea to secure from his patient by a combination of cajolery and threats, the unquestioning, prolonged obedience to orders which the cure of a gonorrhea requires. In fact it is the patient rather than the physician who is usually responsible for failure and a chronic resistant infection. To this factor of reliability which so many gonorrheal patients lack either because of their youth, their ignorance and inexperience or their character make-up, add the expense of treatment and the length of time involved in the management of obstinate cases, and it is small wonder that even a reasonably efficient free dispensary in a city such as New York is obliged to admit that more than 70 per cent of its cases of gonorrhea pass through it hands unbenefited, and usually make only one visit. The man with a gonorrhea appeals to everyone as a "floater," and he inevitably tends to respond to zero in expectations by zero in cooperation and fulfillment. That the traditional irresponsibilty of the patient with gonorrhea is all one-sided is, of course, a mistake. Just as in syphilis, the ability to hold patients voluntarily to treatment depends at least in part upon the physician, and upon the confidence, response and cooperation he is able to inspire in those he treats. Little enough of human kindliness and consideration is extended to the vast mass of victims of gonorrhea. A dispensary "mill" in which a patient's enthusiasm for cure is allowed to leak out in the jostle of a basement line-up and any signs of persistence he may show, meet with an exceedingly impersonal reception or actual rebuff in the form of a sour-visaged intimation that he is a nuisance, trying to get something for nothing, is no place to encourage cures of an obstinate and refractory disease. The injection of a little of the human element into the situation, as so brilliantly exemplified in the pioneer methods of the Brooklyn Hospital Dispensary has a wonderful effect in bringing the value of effective treatment home to the man with gonorrhea and making him swear by it.

Treatment of Chronic Gonorrhea.—The treatment of chronic as distinguished from acute gonorrhea in men is a problem of wide variability, and may call for superlative skill. The seat of the inflammatory process whether in urinary canal, prosfate gland, or seminal vesicle, must be identified by careful tests, and then treatment directed to the place where the disease maintains its foothold. Massage of the prostate gland, injections of vaccines made from dead germs to teach the body to fight the living ones, skilful instrumental applications of medicines to points deep in the urinary system, stretching or cutting of strictures, and similar treatment form a group of procedures which, while of great interest to the

genito-urinary surgeon, offer the patient a much less agreeable prospect. The ounce of prevention in gonorrhea, first, last, and all the time, is worth many tons of cure.

The "Bad Cold" Lie, Fakes, Drug Stores and Quacks.—One of the great obstacles to the treatment of gonorrhea is an ancient lie expressed in the now hackneyed quotation of a current remark "A dose of clap is no worse than a bad cold." This monumental falsehood is at last being nailed by the combined efforts of medical profession and laity, city, state and nation. With such an impression of the disease dinned into his ears by tradition and associates it is little wonder that the young man of the average type finds the restrictions and exactions of treatment irksome. It is little wonder also that he falls an easy prey to all sorts of quackery and to the wiles of Jimmy the drug clerk, who is always "there" with the right thing to take "to dry up a dose" and has no unpleasant ideas about the "water wagon" and avoiding sexual relations while the cure is going on. Of course the boy who "falls for" this stuff wakes up with a jolt some day, and crawls to some doctor's office with a chronic urethritis that may never clear up entirely, and a prostatitis and vesiculitis that have snuffed his chances for all that makes his later life what it ought to be. There are no superlatives adequate to describe the human vermin that thrive on this sort of thing. Among them must be reckoned not alone the advertising quack and the men's specialist, but those commercial concerns which make and market, and those drug stores which permit upon their shelves the innumerable "specifics" for the self-cure of gonorrhea and "gleet," whose alluring promises appear upon the walls of every bar and toilet room. The "clap doctor," with his waving hair and the fatherly look and voice, is still with us. He is the man who plucks the inexperienced boy of the last cent he can beg, borrow or steal, and then turns him out with the words "That morning drop means nothing; you are cured." Not far removed from his level, to our shame be it said, is that type of physician, fortunately becoming more and more rare, whose conception of the cure of gonorrhea ends with "drying it up," and whose ignorance of the microscope and all the modern tests for cure is only equalled by his scorn of them.

Treatment of Gonorrhea in Women.—The treatment of gonorrhea in women is too often a problem of peculiar obstinacy. The mildness of the early symptoms in one group of cases never brings them to medical attention until the outlook for cure is almost nil. Even when definite symptoms appear they are usually misinterpreted into the terms so often used by profession and laity, to conceal the facts; "cold" on the bladder, with frequent urination; "leucorrhea," "ab-

scess" following the first sexual relations after marriage; "appendicitis," when after the first menstruation, the gonococcus sets up an inflammation in the tubes; and "child-bed fever" perhaps if the ascent of the infection is delayed until after the first child is born. While douches and washes are needed in the treatment of gonorrhea in the woman, their unskilful use by the patient in the self-treatment of a "leucorrhea" often does no more than reduce the infection to latency without cure. The neck of the womb, the womb itself and the tubes, as well as the glands that lie at the opening of the vagina, are out of reach of such methods. Skilful instrumentation and prolonged local treatment with surgical measures are usually necessary. Much of the surgery that follows the ascent of a gonorrhea into the upper genital tract in a woman is a treatment of consequences rather than of the disease itself, since the germs may have died out, as in an old pus-tube for example. Acute gonorrhea, invading the abdomen with the symptoms of peritonitis often can only be treated by waiting for nature to wall the process off, since to cut in upon it while it is active is to spread the infection all over the abdomen, with a fatal result. These are the cases of "honey-moon appendicitis" that many a pale, drawn-faced girl can tell of, always ending with that unconscious but no less flagrant indictment of the man and of our social order, "I was always so well until I married." There is no chivalry about gonorrhea. Upon the woman, on whom life at best bestows the larger share of pain, it inflicts the crowning ignominies and deprivations. Yet this, many good people would pursuade us, is our ally; "clap," the sturdy guardian of our moral life.

The Obstinacy of Chronic Gonorrhea in Women.—At best, then, the disease offers women a less satisfactory outlook than it does men. Its effects and their treatment are too often finalities, sealed with the loss of parts and functions that can never be replaced. The seriousness for society of the chronicity and inveterate tendency to relapse that characterize feminine gonorrhea can best be appreciated in dealing with those women who are the reservoir supplying it to the world at large, prostitutes, public or secret. It is a conservative estimate that 75 to 90 per cent of them have the disease. Haines found that after gonorrhea had persisted four to six months without treatment, it required ten to twelve months of systematic care, such as it would be out of the question for any but the wealthy to afford in private life, before the symptoms disappeared and the bacteriologic examination became negative. The significance of such a statement for the girl who through a misfortune or a false step acquires the disease, stands out on the face of it. Stockman, quoted by Af Heurlin, found that in nearly half

(46 per cent) of 500 women, gonococci could still be found on examination months after the patient had been dismissed as cured. It cannot be said too forcibly that there are no clinical signs such as a leucorrheal discharge, etc., by which gonorrhea in a woman can be unvaryingly recognized or the fact of her cure determined. The microscope and the judgment of the expert both in treatment and the determination of cure are the courts of last resort.

The Abortive or Suppressive Treatment of Gonorrhea.—No discussion of the treatment of gonorrhea in men or women is complete without mention of the so-called abortive or suppressive treatment of the disease, which is essentially an attempt to cure or arrest it before it has a chance to extend into the deeper structures. It deserves mention as much for what it will not do, as for what it will. It may be said in a general way, that it will not work at the hands of the patient himself, though many try it, nor yet of a physician, who, while perhaps skilled enough in other ways, is an amateur or out of date in the treatment of gonorrhea. It may also be said, that the attempt of the patient to abort a gonorrhea with any of the strong injections which he may obtain from officious drug clerks and friends, is likely not only to fail to cure, but will probably make the ensuing infection very much more serious than it would have been, and perhaps make it chronic and unmanageable where in the ordinary course of events with average management there would have been a complete recovery. To get the benefit of an abortive treatment, the patient should be in the hands of an expert within twenty-four hours after the first burning and itching around the urinary opening, and the first signs of discharge appear. For the patient to delay matters, to meddle on his own account or to seek unskilled advice is to fail and perhaps to fail disastrously.

Hygiene of Gonorrhea.—So much has been said about the importance of the patient's cooperation in the management and cure of gonorrhea, that it seems worth while to point out the cardinal essentials.

1. Avoidance of excessive exercise during the acute stage. Patients should especially avoid much walking, and dancing is flatly forbidden.

2. The use of alcohol is exceedingly dangerous. The man who exposes himself to gonorrhea when he has been drinking runs a double risk of getting the disease. The man who drinks after he has gonorrhea runs a triple risk of keeping the disease. One of the old-time tests for the cure of a gonorrhea used to be that of seeing whether the discharge would start up again after a "souse."

3. Much water, tea, and coffee, should be drunk to flush the kid-

neys. Spicy foods or spicy drinks, such as ginger ale, are not to be used.

4. Sexual intercourse during acute gonorrhea is usually not desired by the patient. It is when the acute symptoms subside that the danger comes. To have sexual intercourse after the acute stage while a gonorrhea is clearing up or before it is completely cured, is a criminal act, and will moreover start a new attack with serious complications. Sexual excitement without intercourse is likely to have the same effect.

5. Acute gonorrhea is contagious. Although the germs die out on dry surfaces, they can be transmitted by the discharges as long as they are moist. The strictest care in not touching persons or objects or carrying the hands to the face or eyes until they are washed and disinfected, and in not allowing others to use toilet and personal articles, including syringes which belong to the patient, are all essential. A patient with acute gonorrhea should not use a common bath-tub, or sleep with others, or infect the toilet seat by contact. If there are children in the house all precautions should be redoubled.

CHAPTER V.

THE CURE OF GONORRHEA. GONORRHEA AND MARRIAGE.

Gonorrhea is Usually Curable.—With proper care the large majority of both men and women who acquire gonorrhea can recover completely. The problem of gonorrhea from the standpoint of public health is less that of ultimate cure, than that of prolonged infectiousness. Precisely what percentage of cases is ultimately cured cannot be stated in statistical form at the present day since so much of the disease never even gets to the attention of those in position to estimate, much less record, its frequency. It is certainly very large. It must be apparent that an infection which is as effective as gonorrhea in producing childlessness, must have had some check upon its career, or it would long ago have extinguished the race. This check is the almost spontaneous tendency which the disease exhibits, to run its course and get well. If actual and apparent cure were identical, and an acute gonorrhea really ended with the cessation of gross signs and symptoms, the situation would be relatively simple from the public health standpoint. It is, as has been said, the chronic phase of the disease and the long duration of the infectiousness of it in cases in which the process seems to be no longer active that perpetuate its hold upon us. With reference to the duration of this infectiousness Keyes estimates that the average persistence of the germs of gonorrhea in the male urinary canal is six months and persistence over eighteen months is exceptional. He states that he has not known a gonorrhea to remain potentially virulent more than two or three years—although he believes this proves the possibility of indefinite infectiousness in some cases. In women, while the patients usually recover in a few months (Keyes) the exceptions are of more indefinite duration, harder to recognize, and more difficult to treat. No one is willing to set a limit on the period of a woman's infectiousness, and conservative observers have the greatest hesitancy in naming a time at which a woman may regard herself as cured and no longer capable of transmitting the disease.

The Carrier of Infection the Real Danger.—The fact that it is not its incurability, then, so much as the activity of carriers of infection, which perpetuates gonorrhea, points the way to effectual control. So long as individual caprice rather than respect for the public health governs the treatment situation and makes most cases carriers for considerable periods before cure occurs, we can expect no encouraging change in the picture. When dispensary patients can make one visit and disappear, when private cases vanish as soon as the discharge "dries up," when thousands of cases never

have more skilful care than that afforded at the corner drug store, it is immaterial whether gonorrhea is curable or not, since so much of it is permitted to move through ordinary life without let or hindrance. Education of the public, not to the curability, about which they already have an unwarranted optimism, but to the prolonged infectiousness, the difficulties of the treatment, the obstinacy of the disease, will be more likely to provoke action. Once the public grasps the situation, cure will become compulsory and therefore attainable in nearly every case, and carriers, intentional or unintentional will be isolated as far as opportunities to transmit gonorrhea are concerned, with the thoroughness with which typhoid and diphtheria carriers are today.

Modern Tests for Determining Infectiousness and Cure.—The modern tests for the identification of gonorrhea in a doubtful case and the tests to determine its cure should be summarized because one of the surest ways to bring about their general adoption is to familiarize the public with what to expect of those who treat the disease, and incidentally, what must be provided for, in a public movement against it. The detection of an acute early gonorrhea while sometimes possible without the microscope, should usually be made with it by recognizing the germ in the discharge. A point of great importance, often overlooked, is that every patient with a discharge from the urinary canal, gonorrheal or otherwise, should be examined for coincident evidence of the presence of syphilis, since an unknown but probably surprising percentage of gonorrheas mask the beginning of syphilis. In chronic gonorrhea, the microscope becomes even more important, in the examination of shreds in the urine after massage of the prostate gland or other special manipulations, in cases of "morning drop," etc. A single examination is not sufficient to show the absence of the disease especially in women and three or four examinations or even more may be needed. In women more than in men, the absence of a discharge or leucorrhea is no evidence of the absence of the disease. Its stronghold is in the glands and these must be searched, sometimes with the aid of special instruments, in cases in which there is reason to doubt ordinary findings. Sometimes it is necessary to try to grow the germs to prove they are gonococci. There exists also a blood test for the presence of gonorrhea, recently devised, which rests upon principles similar to those governing the blood test in syphilis, to be described later. The blood test, while new, seems to be gaining ground as a valuable means of recognizing cases in patients that otherwise seem to be well. Among all these elaborations and technical details, use of the microscope stands out conspicuously. Any agency—from the clap-quack and drug clerk

through the dispensary to the licensed practitioner of medicine—which is treating gonorrhea without the use of the microscope, is playing a gambling risk against the patient, trading on luck, and contributing directly, without excuse or extenuation, to the aid and comfort of the enemy.

Gonorrheal Childlessness in Men and Women.—Much that should be summarized under this head, has been suggested in the foregoing discussion. In men, gonorrhea, aside from the risk of infecting the wife which exists in an uncured or latent case, unfits a certain percentage for marriage through the effect of the inflammatory process on the sperm or male sexual elements, and the ducts or tubes through which they pass. Sterility in the husband is variously estimated as responsible for from 17 to 25 per cent of childless marriages. It should be understood that the ability to have sexual relations may exist in sterility. It is the failure of the relation to result in pregnancy that constitutes the sterility for which the gonococcus is responsible. It is one of the supreme ironies of fate to have the woman in a childless marriage appear before the physician, ready to submit herself to every manner of procedure including even serious operations, in the hope of curing a sterility for which the husband is responsible, while he, as Morrow says, goes about "inflated with a sense of his own virility." Such charges of sterility in the wife, for which the husband is directly or indirectly responsible have formed the basis of separations and even of actions for divorce. Fortunately it has now become well understood by the medical profession that proper examination of the husband to prove that he has living active male elements is essential as the first move in determining the cause of a sterility. Yet it should not be imagined that all male sterility is due to gonorrhea. For example, Simmonds estimates that 61 per cent of alcoholics are sterile. Moreover it must never be forgotten that the reproductive function is one of the most complicated of physico-chemical mechanisms and a marriage may be childless even in the face of the entire good health of husband or wife. The layman's snap judgment on the presence of gonorrhea in a childless couple therefore has at least an even chance of being wrong instead of right. Certain forms of sterility in the man due to the effects of gonorrhea, are not incurable, the outlook depending somewhat on whether active male cells exist or not.

A Child Unborn.—The burden of gonorrhea in marriage falls overwhelmingly upon the woman. While some men are the unfortunate victims of their wives' infection the rule usually works the other way. Estimates of the percentage of men who transmit their gonorrheas to their wives vary widely from 5 to 45 per cent. Aside

from the invalidism already discussed, for which gonorrhea is responsible in marriage, its influence on the perpetuation of the race is, as such, exceedingly serious. As previously noted, about 50 per cent of all absolute and one-child sterility is due to gonorrhea, and of this sterility, 75 per cent is the result of gonorrhea transmitted to the woman by her husband. The loss to the good of the world which an unborn child represents is in no sense to be measured by its mere place in a numerical series, large though this be. In no trivial sense, the child is the personal immortality of its bearers and of the race. A child unborn is a defeated purpose and a bond unbound. Being unborn is more costly even than death, since the experiences of childbirth and death are at least part of that discipline without which man and wife rarely reach the full development of their character and personality. The woman who through gonorrhea has not known the bearing and rearing of a child carries an inevitable and tragic handicap—she is indeed the victim of an unfulfillment whose poignancy can never be subjected to mere statistical estimation.

Gonorrhea and the Medical Examination Before Marriage.—The protection of marriage from the effects of gonorrhea is one of the critical eugenic problems of our time. It is beset by difficulties which are part and parcel of the status of the genital infections in our social order, and of the medical problems involved in the recognition of gonorrhea itself. It may be said to begin with, that so long as public sentiment does not compel the revocation of the laws in force in most states which oblige the physician to remain silent under the so-called bond of professional confidence while selfish and irresponsible men or women, knowing themselves to be in an infectious state, or indifferent to the question, deliberately marry healthy partners, a certain amount of marital infection will persist. *Such a revision of the law is among the first essentials of any attempt to control carriers of the disease.* On the other hand, the gonorrhea transmitted in ignorance by inadequately treated and uncured cases is a much larger part of the problem, which will only be fully done away with through the reform of the whole situation which public enlightenment will bring. Medical examination before marriage, while it has not yet reached the status in public sentiment and law which it deserves, is a powerful weapon against every type of gonococcus carrier. It is true that the result of such an examination is less trustworthy in women than men, since an antiseptic douche can conceal the actual status of the case; nevertheless repeated examinations properly carried out can often demonstrate the infection if present. Widows, particularly childless ones, no matter what their personal character, and non-virgin women, are

legimate objects of medical suspicion. It is true that in isolated cases, no satisfactory conclusion can be reached, although such cases are rare exceptions. Medical examination of men is irksome to physician and patient, but capable of more trustworthy results. While urination before examination may wash away a morning drop, massage of the prostate gland in the office, followed by a so-called two-glass test and microscopic examination will usually identify a gonococcus carrier, and examination of the urinary canal with an instrument called the endoscope may yield findings that point toward the persistence of an infection. The mere absence of discharge in a man who has had a comparatively recent gonorrhea is never to be trusted as evidence of fitness to marry. Neither is the cursory looking over too often given such cases, to be regarded as satisfactory. The development of the blood test for gonorrhea may offer a valuable aid, but one whose status is as yet not fully determined. Every man who has had a gonorrhea—and this it will be recalled, includes about 50 per cent of all men—should be willing to submit to thorough examination by an expert chosen by the family of his fiancée, as an evidence of his moral as well as physical fitness to become her husband. The completeness of the examination should be left to the expert's judgment.

Protection of the Fiancée.—When gonorrhea complicates an engagement as it too often does, there is only one principle to follow; postponement until a cure has been effected, and that, a cure determined by the microscope and time, and not by the patient's impatience and desires. Here again a new conception of the physician's higher obligation to society will allow him to state the facts to the healthy person if the infected individual shows an intention to marry before he is cured, a form of forced control of the situation that is too often the only way of aiding the woman. These occurrences are anything but remote, as any expert can attest, and until they are dealt with, the problem of gonorrhea in marriage will remain unsolved.

Protection of the Pregnant Woman Against Gonorrhea.—The seriousness of pregnancy as a complication of gonorrhea demands special medical measures, both for the sake of the mother, and of the child. The examination of women who have such symptoms as "vaginal abscess," burning urination, leucorrhea and abdominal pain soon after marriage or during pregnancy, and of unmarried mothers especially, for evidence of gonorrhea, is of the utmost importance. The examination should be made early in the pregnancy if possible to allow for painstaking and systematic treatment before the birth of the child. The life-saving value of such a measure is so great that it should under no circumstances be neglected.

A Warning in Regard to Double Marital Infection.—It should not be forgotten, as an explanation of more than one embarrassing or tragic situation, that the fact that a man and wife live together or have sexual relations without showing evidence of gonorrheal infection may be due to the simple fact that both have it, albeit in a mild or quiescent form. The separation of the parties to such a marriage or liaison leaves two sources of infection free to communicate their ailment to others, the more easily because, having failed to note any evidence that they had infected each other, they would believe themselves to be normal. Similarly, the treatment of one party to a marriage for gonorrhea calls for the examination and treatment of the other, since it is only under the rarest of conditions that one has the disease without the other, or that the one can be cured while subject to repeated risk of re-infection by the other.

Remediable Weaknesses of the Existing Situation.—This completes for the time being the consideration of the medical aspects of gonorrhea which affect its status in a public health campaign against diseases of sexual origin. Age-long underestimation of its seriousness has become part and parcel of common thought, and only prolonged and persistent effort at re-education will finally give the disease the place it deserves in the public mind side by side with syphilis, tuberculosis and cancer, as one of the four greatest surviving plagues of the human race. This undeveloped public sentiment is coupled with a medical handicap that is yet to be overcome. Slowness and some uncertainty in treatment, the absence of the spectacular, and the unfamiliarity of the medical profession with certain new and vitally important methods for the recognition of the disease in, active and in latent, though still contagious cases, deprive a campaign of some of the dash and brilliancy possible in syphilis, but form no insurmountable obstacles. Too few great minds, it would almost seem, have made the biology, the physiology, the chemistry of the gonococcus, and the body which it invades, their life-work. Throughout this field as throughout all fields of medicine, the temporizing, hand-to-mouth treatment of consequences rather than causes has held the center of attention. An expenditure of effort and brain-power equal to that which has been lavished on the results and the wreckage of gonorrhea, if expended upon its early stages, on the control of its carriers, and on its prevention, would, within a generation or two, lead to new knowledge that should reduce it to a position of minor importance in the ranks of disease. It is not the association of gonorrhea with a moral issue such as that of prostitution which maintains its foothold. It is our own refusal in the past to deal

with it radically as a dangerous infectious disease wherever it may be found. The fact deserves re-emphasizing, that in spite of its peculiar obstinacies, in spite of the lack of dramatic and rapidly effective methods of attack, continued insistence upon the contagiousness of gonorrhea, determined focusing of every effort against it, upon its transmissible stage and upon its transmitter, can even today remake our point of view, and begin the abolition of the disease. When gonorrhea is universally understood to be almost as common as measles and more terrible than smallpox—a disease which thrives on lies and cowardly silence—the way will open for a new public health.

PART III. SYPHILIS.

CHAPTER I.

HISTORY, CAUSE AND PREVALENCE OF SYPHILIS.[1]

The Origin of the Name.—Syphilis, vulgarly spoken of as "pox" and "blood disease," is one of the most remarkable diseases which affects the human race. The name, over which so many victims have stuttered, means "a lover of swine," and was first applied to the disease following the appearance of a poem by Fracastor[2] in 1530, in which a dramatic recital of the symptoms was given as they appeared in the person of the principal character, Syphilus, a swine-herd, who became infected. The word has no more horrifying or disgraceful significance than would the name "Job," if used as a modern term for boils, with which that Biblical character was afflicted.

Syphilis, a Master Disease.—Syphilis, like gonorrhea, is an infection caused by a specific and definite germ. It is a master disease, the peer, and indeed the superior of tuberculosis, the great "white plague" in the wide range of its influence over the fate of mankind, present and future. There is not a tissue or a structure of the body which syphilis cannot affect, nor is there an aspect of the entire science of medicine in which it will not be encountered. Sir William Osler coined the famous phrase which for all time expresses the relation of syphilis to medicine "Know syphilis in all its manifestations and relations, and all other things clinical will be added unto you." No lane is so long that one may not find syphilis at its turning. The disease has changed the destiny of mankind upon the earth. If it should cease at this moment to be transmitted, its effects would not disappear from the world within two and perhaps three generations. Few indeed of living human beings can boast an ancestry free from its remote effects.

It is not strange therefore, that a disease of which such statements can be made, should have challenged the most intense interest, and should have drawn to its investigation and to the problem of its treatment many of the ablest minds of medicine and the sciences upon which medicine is founded. There is about it a dramatic quality that one feels the lack of in gonorrhea. Infinitely clever, infinitely versatile, even a little inclined to chivalry in that

[1] Three discussions of syphilis are available to the general reader. They are:

1. Pusey, W. A.: Syphilis as a modern problem. Am. Med. Assn., Chicago, 1915. An eminently readable discussion, containing a large collection of important facts.
2. Vedder, Col. E. B.: Syphilis and public health. Philadelphia, Lea & Febiger, 1918, 315 p. This is a monumental, but not over-technical, presentation of every phase of the subject.
3. Stokes, J. H.: The third great plague: A discussion of syphilis for everyday people. Philadelphia, Saunders, 1917, 204 pp. This book is written primarily from the standpoint of the patient and those who come in contact with him.

[2] Fracastor, H.: Syphilis, sive morbus gallicus. Verona, 1530. 36 l.

the disease is in general less severe in women than in men, syphilis is an opponent worthy of the subtlest resource, the most indomitable determination. The seeming triviality of its onset, its extraordinary skill as a dissembler, the silent but none the less terrible march of the invading host of spiral germs from their point of invasion through the blood to every structure of the body, the long years of silent, evil and yet wonderfully skillful work they do under an outward aspect of good health; the variety of ailments to which syphilis can give rise, and yet the dramatic, the almost astounding effectiveness of proper treatment, make it decidedly unique. It is little wonder that Fracastor felt impelled to describe it in poetry, for bizarre though the conception may seem, syphilis is an artist, a craftsman in evil beside whom Machiavelli and Cesare Borgia were bunglers and dealers in crudity. To the appreciation of its course and its history it is not amiss to bring a little of the spirit of the artist, in order to understand the workings of this masterpiece of evil, this most gifted of all the unholy fellowship of devil's aides. It is this touch of knightliness that lifts the story of syphilis from the sordid into the field of romance.

The Historical Aspects of Syphilis.—Syphilis has a peculiar history. There is, of course, room for argument as to its antiquity and its origin, and it is scarcely possible as yet to regard the question as closed. But the conception of the so-called American source of the infection seems to be obtaining a wider and wider acceptance. In accordance with this view, it would appear that instead of having the universality of gonorrhea, syphilis was suddenly laid upon the doorstep of an unsuspecting world by the sailors of Columbus in 1493, upon their return from the Island of Haiti, in which the disease was known, and where they had acquired it. Whether or not it had existed in the old world prior to this time, certain it is that from the time of this fresh importation it took on new life. During the sixteenth and seventeenth centuries an epidemic of the disease swept over the continent of Europe, which, for virulent frightfulness and spectacular horrors totally eclipsed anything seen except in the rarest of cases in these days. The combined aid of armies and voyagers carried it apparently into every corner of the habitable earth. Medicine, still enchained by the lethargy of the Middle Ages, was jolted into life by the whirlwind of disaster. On every side the ablest minds the art could muster bent themselves to the problem. Clinical knowledge of the symptoms of syphilis sprang into existence with a rapidity scarcely to be equalled for a time by progress in any other field of medicine. We have noted already the confusion with gonorrhea fathered by John Hunter and later set right by Ricord. With the work of the latter, and of Diday,

both Frenchmen, and that of their disciples, the modern conceptions of the disease came one by one into being, so that by the end of the nineteenth century there lay ready for the fertilizing power of laboratory research, a rich field of knowledge of the human aspects of the disease. Syphilis itself, after the violence of its epidemic phase, seemed to subside into the subtle and malevolent cleverness we know so well today. Instead of descending upon the victim as a thunderbolt, literally dissolving him bone and body into a mass of carrion, it now expresses itself less luridly but none the less effectively in the form of grave diseases of the heart and kidneys, in death from impairment of the great blood vessels, in damage to sight and hearing, in loss of the power to move through the death of nerves, in snuffing out of the mind itself.

The New Knowledge of Syphilis.—In the later years of the nineteenth century, a change long prepared for and foreshadowed came over the whole face of medicine. The sciences upon which the art must always rest for the foundation of its advance, had come into existence, and grew under the genius of men like Pasteur, the founder of bacteriology, into a fountain-head of inspiration and new knowledge. With almost miraculous suddenness the whole aspect of our knowledge of syphilis changed with the changing situation in medicine. One epochal discovery trod the heels of another in the decade from 1900 to 1910. The whole fabric of the new science of syphilology was welded together by men whose labors deserve Homeric words of praise. Schaudinn and Hoffmann, Matchnikoff, Roux, Bordet, Wassermann, Ehrlich, Hata, unassuming men drawn from all the great intellectual sources of human life, carrying on their labors in the seclusion and quiet of laboratories, were none the less the peers and fellow-workers of Vulcan, who in the heart of a volcano, forged the armor of the gods. To the tremendous constructive brain-power of these men, the grasp that Ehrlich and Hata had of the chemistry of arsenic and the biology of the germ of syphilis, the eye-sight and the experience of Schaudinn who could see in the germ he discovered, with the ordinary lenses of the microscope, structures that lesser men can barely see today with the artificial aids he despised or did not have—to these men we do homage in the mere mention of the new knowledge of syphilis. "Though they be not sought for in the council of the people, nor be exalted in the assembly," they have re-made the destiny of man upon the earth.

The Discovery of the Germ and the Transmission of Syphilis to Animals.—Few more important occurrences could be imagined than the identification on April 5, 1905, by Schaudinn and Hoffmann, the former a zoologist and the latter a syphilologist, of the germ which

is now practically universally accepted as the cause of syphilis. Innumerable germs had been suspected before this, but had failed to stand critical study. The identification of syphilis as an infection and the recognition of its cause combined with the proof furnished by Metchnikoff and Roux that it could be transmitted to certain animals and could therefore be studied experimentally, furnished the groundwork upon which rests the whole fabric of the modern recognition and treatment of the disease. Not that syphilis was not recognized before, or that its treatment had not met with a measure of success. But the identification of the germ in the very first sore of the disease makes possible a prospect of complete cure that is incomparably greater than anything the older knowledge could offer. The transmission of the disease to animals made possible the invention of the synthetic compound of arsenic known as "606" by Ehrlich, which produces radical effects upon the disease in all its stages, and controls its contagiousness in a way that alters our whole outlook upon it as a problem in public health.

The Spirochaeta Pallida and its Recognition in Early Syphilitic Sores.—The germ of syphilis is called the *Spirocheta pallida,*[1] the first word describing its corkscrew shape, and the second the extreme difficulty with which it can be stained with dyes to make it visible. It is exceedingly minute, and is best observed in the living state, when freshly taken from the secretions of certain syphilitic sores, the study being made under the highest powers of the microscope, with the aid of a special instrument called the "dark field," which shows the germs in a beam of reflected light, much as motes appear in a sunbeam in a darkened room. It is also possible to use stains as in the case of the gonococcus, though they are less satisfactory. The germ of syphilis has been so recently discovered, and the subject of syphilology in general has been so poorly taught in medical schools of the past generation that many men called upon to deal with syphilis today have little or no conception of the importance of the germ in the recognition of the disease in the living patient, and too often have never seen it or learned how to find it when occasion demands. Yet it is not too much to say that the time has come when the ability to find the Spirocheta pallida in certain sores, especially the early ones of syphilis, and the mechanical equipment for doing it, are absolutely prerequisite to professional fitness to diagnose or treat the disease. British naval medical officers in the first year of the war, showed, for example, that of 671 men with venereal sores, 63.4 per cent were recognized at once as syphilitic by the use of the dark field and only 13.9 per cent were later found to be syphilitic by subsequent blood tests.

[1] A number of investigators consider "Treponema pallidum" the proper term.

When we recall that in 1911 only about 14 per cent of early syphilis in the United States army was recognized during the stage of the first sore or chancre, and in 1915 only 22 per cent, we can appreciate the immense advance made possible through the newer methods, by which it is safe to say no less than 80 per cent of all syphilitics seen in the stage of the first sore can be recognized and given the 100 per cent chance for cure. No physician, and no hospital or dispensary which is not equipped to identify the germ of syphilis or is unwilling to see that the patient gets the benefit of such knowledge elsewhere if it is called for by the nature of his case, has any business to pretend to deal with early syphilis. The statement seems radical, yet upon its literal acceptance depends more than half of our hope of future progress based on early and complete cure.

The Prevalence of Syphilis[1].—Before considering the nature of the disease itself, a few words should be said about its prevalence. Here again, as in the case of gonorrhea, estimates rather than exact statistics must be largely drawn upon. It should be recalled that a large amount of syphilis goes about unrecognized in the ordinary course of events, until some of its effects appear, or an incidental ailment brings the patient into the hands of someone who applies the modern tests. So greatly has the blood test for syphilis increased our power to recognize the disease that the older figures have lost much of their value. Yet even these based in the vast personal experience of men like Fourier, estimated the percentage of syphilis among the adults of large cities like London and Paris as from 10 to 13 per cent. A survey of British working men seemingly in good health, made by Collie, showed 9 per cent to have syphilis. Class variations and age are a large factor in estimating the prevalence of the disease and no consideration is complete which omits them. For example, Vedder came to the conclusion that 20 per cent represented a fair average for the amount of syphilitic infection among young men who enlist in the army, and that among men representing the grade which applies for commissions, trains at West Point or enters our colleges, 2 to 5 per cent is the approximate prevalence. Among hospital patients estimates range from 10 to 20 per cent based, however, quite largely upon the blood test rather than upon combined blood test and medical examination, which invariably results in a higher figure. Among young women Vedder estimates that the percentage fluctuates between 3 and 20 per cent depending on age, marital condition, social status, etc. Among private patients from 10 to 20 per cent have syphilis, among chil-

[1] Those especially interested in this question, and all public health officers, should read the remarkably complete presentation of this subject by Col. E. B. Vedder in "Syphilis and public health," loc cit.

dren 3 to 10 per cent. Among negroes in apparent health, the percentage varies from 25 to 30 per cent, among the sick from 40 to 50 per cent. Among criminals the range is from 20 to 40 per cent, among the insane (male whites) 20 to 35 per cent, among prostitutes from 50 to 100 per cent. There are some notable national figures, especially those for parts of Russia in which it was estimated that 95 per cent of the peasant population had the disease. While such spectacular estimates can have no general significance, they suggest the extent of the problem in nations with a low physical and mental standard of living. Estimates for the continental countries such as Germany and France do not differ materially from those quoted for the United States. The question as to whether or not syphilis is on the increase is one difficult of determination, since the newer methods of recognizing the disease are creating an impression of increase which may be more apparent than real. Pusey believes that on the whole there is no evidence to show that it is becoming more prevalent than in the past.

It needs no comment to carry home the meaning of these figures to every thinking man and woman. Nothing could more effectively shatter the notion that syphilis is the heritage of the unfavored few, the trophy of debauch, the sign-manual of the down-and-out. Syphilis is one of the most widespread of all infectious diseases. Its victims are numbered in millions, not in hundreds. Not a man lives, or a woman, who does not elbow it every day, whose house has not seen its entry and departure, who may not at any hour have his name added to the rolls. While to be sure there are variations in the nearness or remoteness of the risk, never does it become so distant that any one of us can sit by and say in smug unconcern "This is not my affair." While it is not so prevalent as gonorrhea, it may beset us perhaps in disguise, and but too often in dangerous contagious form, in those unsuspecting hours when we believe ourselves at ease among our friends. Syphilis is too cunning a craftsman in evil to permit the limitation of his labors to the few.

CHAPTER II.

THE COURSE OF SYPHILIS—PRIMARY AND SECONDARY STAGES.

The Stages of Syphilis.—A knowledge of the course of syphilis and the effect produced by the germ upon the body is essential to any comprehension of the problem in public health which it presents. Reference has already been made to the fact that it can affect any portion of the body and in such a variety of ways as to make its manifestations almost synonymous with the whole field of medicine itself. There is indeed scarcely a known condition due to other causes which syphilis cannot passably imitate. The conventional division of the disease into stages has also been foreshadowed in the preceding discussion. The usual terms for these stages are primary, secondary and tertiary. They are arbitrary divisions based on time rather than on the course and peculiarities of the disease. A more rational grouping would be into an early local, a generalized or disseminate stage, a stage of recurrences and latency, and finally so-called late syphilis, including what was formerly spoken of as quarternary syphilis of the nervous system—that is locomotor ataxia and general paralysis of the insane. These divisions while taking account of time, are also based upon the behavior of the germ and the reaction of the body to its invasion.

The Primary or Localized Stage—The Chancre.—Early local or primary syphilis covers essentially the period from the appearance of the first sore, to the time when the germs spread to all parts of the body. The germ of syphilis gains entrance to the body usually through an abrasion or wound in the skin or the thin, moist, red mucous surfaces. This abrasion may be so small that it is only visible under the microscope, so that the seeming wholeness of the skin or mucous surfaces is no evidence whatever that the germ has not found an entrance. When the Spirocheta pallida enters the body it remains for some time at the place where it gained entrance, the germs multiplying and setting up in the surrounding tissues a reaction which is essentially a mild chronic inflammation. In an infection with the gonococcus there is at least a passable fight, and that quite promptly. The spirochete of syphilis on the other hand arouses much less opposition, unfortunately, and has a correspondingly greater opportunity to gain a foothold. From the time the germ enters the body until the first signs of a sore or reaction appear a period of several days to several weeks may elapse, in which the patient has no idea of the danger he is in. If he knew himself to be infected, this so-called period of incubation would be the ideal time in which to take strong treatment, since the germs could be

killed off with comparative ease. In cases where a person is known to have been exposed, it is in fact becoming good practice to forestall the appearance of any sore by treating him on the chance that one will develop. The patient, however, does not usually discover his situation until a small lump, a chafe, or an actual ulcer appears at the place where the germs entered. This sore is the first outspoken evidence of syphilis and is called the chancre (pronounced shan-ker) or primary lesion. During the first few days of its appearance, the overwhelming majority of the germs of the disease are in it and in its immediate neighborhood. They have not as yet spread to any significant extent to other parts of the body. Their presence makes the discharges from the chancre extremely contagious and dangerous for others. But from the patient's standpoint the fact that they are still in one place and have not as yet invaded the body makes this the golden moment for cure.

Cure in the Early Stage (Abortive Cure).—The patient is warned by the sore that there is something wrong, if he knows enough to take it seriously. If the germs are immediately found by the dark field microscope and powerful doses of the newer drugs such as "606" are given directly into his blood before the spread of the germs takes place, the process is stopped before it has started so to speak, all the germs can be killed off, and a complete and rapid cure results. This curing of the disease in the earliest days of the primary lesion is called "abortive" cure. It should be reiterated that this is only possible in the earliest days, almost the earliest hours of the visible chancre. No test of the blood will prove the presence of the disease at this time, for once the blood shows it, the chance for abortive cure is gone. Abortive cure is one of the great hopes of humanity in its battle against syphilis. The need for it should be preached from housetops, as was the outdoor treatment of tuberculosis. While its use is still in its infancy, we have good reason to believe that if it could be applied throughout the world in conjunction with social and educational as well as medical preventive measures, syphilis could be wiped out as completely as malaria can be by the extermination of the mosquito.

Just when the opportunity for abortive cure ends cannot be determined as yet by any means we know. One thing is sure—abortive treatment cannot begin too soon and it can easily be too late. The first four to ten days of a sore seen from its very beginning represent the best guess as to the upper limit of time in which it is possible to obtain an abortive result.

Difficulties in Recognizing a Syphilitic Chancre.—Emphasis has already been placed on the fact that there is no reliable way of telling from its appearance whether a genital sore is a chancre or

not. The microscope is the first resort. Chancres may be of any size and appearance, and may develop anywhere. It is even believed that they may be altogether absent and the patient still acquire syphilis. It is not a rare thing for a chancre to occur inside the canal through which the urine passes or just at the opening and to be masked by the discharge of a gonorrhea acquired at the same time. In women it may develop in the vagina or on the neck of the womb. Many intelligent and entirely truthful patients with syphilis can give no account whatever of a chancre though they admit having had gonorrhea. Still others, women especially, can give no account of either syphilis or gonorrhea, and yet they have syphilis. It has been estimated that as high as 40 per cent of men and 60 per cent of women having syphilis are not aware of the onset of their infection as such, or have forgotten its trivial beginnings. It cannot be too strongly said that a chancre may be so small, so unobtrusive, so painless, so well concealed in some fold of skin or mucous membrane that even an intelligent and observing patient will wholly overlook it. Add to these overlooked infections the innumerable misinterpretations of chancres which are dubbed "chancroids," "soft sores," "chafes," cold sores, etc., and the real wonder becomes, not that so much early syphilis goes unrecognized, but that any of it is recognized at all. In women especially, as already intimated, the opportunities for a chancre to pass unnoticed are much greater than in men. The genitalia are less accessible, and a chancre can occur for example on the neck of the womb or in the vagina without the victim's ever realizing the fact or being aware that she is in an infectious condition. It is indeed a rarity for women to have an infection recognized in the primary stage and for them therefore the outlook for abortive cure based on the identification of the primary lesion is vanishingly small. Aside from those few cases which can be treated on the knowledge that they have been exposed even though no chancre can be found, the problem of controlling syphilis by the treatment of women will largely resolve itself into putting a stop to their infectiousness as soon as the disease has developed far enough to be recognized by other signs.

The Spread of the Germs from the Chancre to the Body.—From the chancre or primary lesion, if nothing is done to stop the progress of the disease, the germs of syphilis travel by way of the lymph channels at first, to the nearest set of glands or kernels, where they provoke a reaction which shows itself as a local swelling. A marked swelling of the kernels or glands in the neck or under the jaw, coming on rather rapidly, with a very sore throat or a sore on the lip, should at once arouse the suspicion that the sore is a chancre.

When the chancre occurs on the genitals the swelling is less characteristic, and more likely to occur with other types of infections. This invasion of the lymph glands is the last phase of the primary stage, and indeed when it becomes definite the local period of syphilis is over. When the lymph glands have ceased to serve as a defense, a sudden change in the whole aspect of the disease occurs, The germs abruptly get into the blood stream in enormous numbers, and are carried forthwith to every single structure of the body. While a few germs may have entered the blood before the grand attack, the sudden rush is an attack in force, a "Big Push" which places the patient once and for all beyond the reach of the abortive, hundred per cent cure. The infection has now become generalized, as we say, and syphilis is a constitutional disease from that moment. While the germs of gonorrhea gain access to the blood in occasional cases and produce symptoms, syphilis differs from gonorrhea in that this invasion is invariable, and that owing to peculiarities in the germ, it involves consequences vastly more serious and far reaching than those of systemic gonorrhea.

The Generalized or Secondary Stage.—The generalization of the infection, which usually occurs from the first to the fourth week after the appearance of the chancre, marks the beginning of the secondary stage. Before anything appears the patient may have premonitions of trouble in the form of headaches, a drop in weight and a feeling of being under the weather. Then in the large majority of cases the thing which constitutes syphilis in popular imagination occurs. The patient usually "breaks out" with some kind of skin eruption which on account of the wide distribution of the germs tends to be general over the body.

Syphilitic Eruptions and their Variations; Common Misconceptions.—Syphilitic secondary eruptions are comparable to many other eruptions in skin diseases. They take on the widest varieties of forms, ranging from a few faint pink spots in the armpits and flanks, which the patient may not even see, to great, round, punched out ulcers that may riddle his skin like a burst of shrapnel. The recognition of syphilitic secondary eruptions is at times none too easy a matter for the expert and it may be a bugbear for the average doctor. If it is hard for him, it is apparent that no layman has any business to take upon himself the task of deciding the matter. The arrogant self-sufficiency with which occasional persons will set themselves to wreck the lives of unfortunates with skin diseases on a non-medical decision that they have some "bad disease" is one of the wonders of that combination of stupidity and ignorance against which the gods themselves fight in vain. Persons with psoriasis especially, a harmless but disfiguring affair, are sub-

ject to cruel and scandalous misjudgments from this source. The author has known ministers to all but lose wife, church and reputation through the unprincipled activities of amateur dermatologists in their congregations. There can be but one honorable course for an outsider to pursue when confronted with an eruption on the person of friend or acquaintance. If it is any of the outsider's business, let him frankly ask the friend for a statement from his medical advisor or advise him to carry such a statement about with him. If it is not the outsider's business, let him keep silent.

Syphilitic Eruptions and the General Public.—Fortunately two considerations minimize the importance of syphilitic skin eruptions for the general public. In the first place, they are practically never contagious when on the free skin of the body or the face. It is only when some of the bumps occur in moist spots such as the armpits or the groins, where their tops can be rubbed off, that the germs get an opportunity to escape. Even in such cases the damage can only be done to those who come into intimate contact with the body or the moist underclothing of the syphilitic. No dry, unbroken skin surface transmits the disease. In the second place, a syphilitic skin eruption if prominent enough to draw the public eye sends the person at once for treatment, with the result that it is usually rapidly cleared up.

The Dangerous Contagious Manifestations of Secondary Syphilis.—Secondary syphilis is, however, accompanied by outbreaks which are full of danger for others, and the danger is the greater because it is the dangerous sores which are usually hardest to recognize or least suspected of having any connection with the disease. Secondary syphilis shows a marked tendency to involve the throat and mouth, and the moist surfaces in and about the genital tract in both men and women. The biological reason is apparent enough. Here the germs find the ideal combination of moisture and an absence, or comparative absence of air. The constant friction and motion to which such surfaces are subject in walking, talking, etc., soon rubs the tops off the spots in which the germs have gathered, and releases them by millions. The spot becomes covered with a thin grayish membrane, forming the so-called mucous patch, which with its brother, the flat wart or condyloma, is by all odds the most dangerous sore produced by syphilis. Mucous patches are practically painless. A throat may be literally plastered with them from side to side and the patient complain of no inconvenience, or only a slight soreness or discomfort. There may be none in the throat but one or two of them may appear on the under side of the lip opposite the gum or at the angles of the mouth, ready to spread spirochaetes over dishes, pipes, dental instruments, the lips of children or adults, the faces

and fingers of doctors operating on and examining the mouth, the thermometer with which the nurse takes the temperature. They may not be, and indeed too often are not, seen by the busy or hurried doctor, and certainly not by the patient, by uninitiated friends and outsiders, or by unsuspecting wife and children. Similar spots and patches appear about the genitals, but here on account of irritation they are inclined, especially in women, to grow into peculiar flat warts, or condylomas. Growing about the opening of the rectum they are often mistaken for "piles." Of all the sores that syphilis can produce there is nothing so rich in the germs as the flat wart or condyloma. Not being sensitive they easily pass unnoticed, and one of them can infect an army.

The Constitutional Effects of Secondary Syphilis; Symptomless Syphilis.—It should not be supposed that the activities of secondary syphilis are limited to the skin and the mucous surfaces of mouth and genitals. The spread of the germs by the blood enables it to affect in some degree all parts of the body. But there is a definite tendency on the part of certain strains or breeds of the Spirochaeta pallida to affect some parts more than others. Some patients develop the violent headaches of syphilitic meningitis and nerve paralysis of various types. Others have inflammation in the eyes, still others develop bone and joint pains and swellings that too often pass as "rheumatism." Some have thinning of the blood (anemia) and marked loss of weight. But the most serious thing about it all is that many develop almost no symptoms, and occasionally some of them even say they feel in better health. Half the persons with secondary syphilis would never have their attention attracted to their condition by their symptoms. It is indeed true that those who have a severe secondary syphilis are fortunate, since only too large a share of the victims pass untreated to the late stages through failure to realize that anything much ails them. Treatment in the late stage cannot make good damage that delay through ignorance has made possible.

CHAPTER III.

RECURRENT, INACTIVE AND LATE SYPHILIS.

The secondary or generalized stage of syphilis terminates in a remarkable way. The billions of germs that swarm through the body when the secondary stage is at its height, through some remarkable development of the patient's bodily resistance, die out whether the patient is treated or not, until comparatively few remain. But in their dying they have left behind a legacy that reaps disaster for the victim of the disease in his later years. The body has in some way become sensitive to the few germs that remain, and as the disease progresses, reacts to their presence in a far more serious way than it does in the earlier stages. Syphilis in the early local and in the generalized or secondary stage is one of the mildest of all the serious infections. In its late stage it becomes one of the gravest diseases known.

Latent, Obscure or Silent, and Recurrent Syphilis.—The transition from secondary to late syphilis is not abrupt, not embraced within a definite period of time. Late manifestations may appear before the chancre has thoroughly healed in some cases. But as a rule they are preceded by a period of latency, which may last from a few weeks or months to sixty years or more. In this long period of latency, in which the patient is seldom reminded of the existence of his infection, appear the so-called recurrences which make him a danger to his fellows. From time to time, perhaps, from some focus or hiding place in the body, it would seem as if fresh showers of germs may be discharged into the blood. When these affect the constitutional condition the patient may note a loss in weight and feel under the weather, have some aches and pains, and recover. Sometimes minor eruptions appear on the skin, usually inconspicuous and not noticed by the patient, but highly significant to the experienced physician.

Contagious Recurrences and Inefficient Treatment.—When recurrences affect the mucous membranes and the genital tract they have the most alarming meaning for the public at large. They usually take the form of mucous patches and condylomas, and are generally either not noticed by the patient or are misinterpreted as cold sores, piles, canker sores, smoker's patches, etc. They swarm with the germs of syphilis, and because unsuspected, are doubly effective in transmitting the disease to others. Often in the stage of recurrences, sores which are not essentially syphilitic will contain the germs of the disease, especially ordinary cold sores (herpes) about the lips and genitals. It is not difficult to grasp the fact that a patient who thinks himself well, or does not know that he had the

disease, when armed with an equipment of mucous membrane recurrences of whose presence he is not aware, is an unconscious engine of destruction scarcely inferior to a baby handling dynamite. Many an infection in and out of marriage and in the ordinary course of life owes itself to these fleeting recurrences in syphilitics who, either in the natural course of events or after a little treatment, recovered from their outspoken secondary manifestations. They are the Nemesis for the world at large, of inadequate treatment. Treatment enough to clear up a secondary eruption is not sufficient to prevent recurrences. In fact it is in precisely these cases that the recurrence is the greatest menace, since it catches patient and doctor off his guard. I have known patients, giving a frank history of syphilis and of a fair amount of modern treatment but not enough, to be examined at the hands of unusually competent general diagnosticians and with normal or negative blood tests be passed as all right. Within twenty-four hours after, I have found the Spirochaeta pallida in a mucous patch on the tonsil, which had appeared literally over night. The patient, absolutely unaware of its presence and secure in the assurances of his physician of the day before to the effect that he was well, could scarcely be pursuaded that he was not the victim of a hoax.

Silent or Latent Syphilis and Late Complications.—If one adds to the obscure and frequently overlooked early signs of syphilis a latent period covering from ten to twenty years in which absolutely nothing may warn the patient of the fate that awaits him, it is easy to understand the almost mind-destroying shock which temporarily wrecks the courage and morale of those who in the prime of life, have to be told that the trouble with the stomach, or the pain in the chest, or the dimming eyesight and unsteady feet means the syphilis of their youth.

"Why, man, it can't be—I never had a thing the matter with me in my life—never had a sore or a breaking out, never even had a dose of "clap." Why I haven't had to call a doctor for twenty years, until this came on. It just can't be."

"You took your chances with the rest when you were a young fellow, didn't you, old man?"

"Yes, I suppose I did, but I've never been outside the family, since I married, doctor; always prided myself on being clean, and yet you can tell me this."

"It was somewhere along in there before you married, old man, even if you didn't know it. Better bring the wife and kiddies up to see me, too. Let's see, she had two miscarriages didn't she?"

And so the whole wretched story comes out in dialogue, each a

variation upon the great central theme of the latent period of syphilis.

Late Syphilis—Premature Old Age and Gummatous Change.—Two changes characterize the activities of late syphilis in the body. One of these is the induction of premature old age, so to speak, by the slow conversion of active tissue into thickened, hardened, fibrous scar. The other is the process known as gummatous infiltration, which consists in the replacement of normal structure by a kind of tumor-like growth of shoddy tissue, which, being of low vitality, breaks down or ulcerates, leaving a hole to be filled in its turn also, by a scar. The aging effects of syphilis are most apparent in the blood vessels and in structures like the heart, in which long-standing slight inflammation produces a hardening, and loss of elasticity, a toughening and thickening that finally impairs their power to do their work. Premature old age of the arteries, early arteriosclerosis, is common, and quite often, though not always, due to syphilis. Gummatous changes may affect almost any structure of the body. Since the destruction done by gumma formation is permanent and the tissue lost can only be replaced by scar, it is a matter of the utmost import where the gummatous change occurs. Gummas of the skin and bones, especially about the face, are hideous and disfiguring, but the loss of a feature or two, the caving in of a nose or a hole in the roof of the mouth, is really a cheap escape in late syphilis. The damage to the goods in this case involves the package only, so to speak. But gummatous replacement of parts of important organs such as the liver or the walls of blood vessels, large and small; of the tissues of the nervous system which never regenerate once they die, strikes at essentials. As an illustration of the often unsuspected effects of such changes a weak spot in the wall of the lenticulostriate artery a minute blood-vessel in the brain, so often involved in late syphilis, spells early apoplexy for the one whose disease takes this form. As one passes through the wards and rooms of great hospitals one meets in tragic succession the man whose wheezing breath and swollen limbs and pounding heart betray the work of the Spirocheta pallida upon the valves of his heart and at the base and in the walls of the aorta, the great artery that carries the blood to the body; the man whose yellow weazened pallor, bony chest, and enormous swollen abdomen spells late syphilis of the liver; the fine young fellow with the dark expressive but sightless eyes who has gone the way of "primary optic atrophy." That thin broken woman and those forlorn weeping children bowed beside the unconscious father whose loud puffing breathing can be heard all along the corridor, are brought to that death-bed by the work of late syphilis upon the kidney—"chronic Bright's disease" in one of

its many forms. The man whose feet flop wildly as he claws the arms of his wheel-chair at your command to rise—the wobbling, doddering fellow yonder, whose foolish fatuous smile and trembling flabby lips and food-stained waistcoat mark him as having softening of the brain, are part of the picture of late syphilis at headquarters, among the intricate mechanisms of the nervous system.

The Hopeful Side of Late Syphilis.—No picture of late syphilis is a just one, however, which does not end in reassurance. Some unaccountable peculiarity of the germ or of the personal resistance of the patient intervenes to save many patients with syphilis from the most distressing complications of the disease. Syphilis is equally adept in the role of the lion and of the lamb. On the one hand a gummatous tumor of the brain may carry off a young fellow within a year of his primary lesion—on the other hand an aged veteran of the Civil War, may after a latent period of more than sixty years, show a trivial little crusted sore or a few small lumps in the skin as the sole remaining evidence of an infection that he never knew he had had, and which never was treated. It is impossible in the present state of knowledge to estimate the percentage of persons who having acquired the disease, later suffer from serious late accidents. All that can safely be said is that as our means of detecting syphilis in the blood, and in the tissues and organs both during life and after death become more accurate, our conception of the really tremendous role of this disease in human disability and physical deterioration grows. One thing is certain; if only 50 per cent of the patients who contract syphilis, die, or are crippled with its late complications, it ranks easily as one of the most formidable of foes—an enemy that no thinking human being would invite within his camp on the chance that lion might prove lamb.

Late Syphilis of the Nervous System—Locomotor Ataxia and General Paralysis.—The prevalence of locomotor ataxia and of general paralysis of the insane needs a special word. Locomotor ataxia is a form of creeping paralysis of the spinal cord which affects the limbs and the nerves to the bladder usually first, but also involves the eyes, and the nerve supply to other structures including the stomach. General paralysis of the insane or softening of the brain is a progressive and invariably fatal form of mental and physical degeneration which converts the victim from a normal individual into an imbecile and a skeleton before his death. These two diseases constitute to the partly informed public and to victims of syphilis, the overwhelming horror of their outlook. The belief that all syphilitics are doomed creatures, certain to lose the use of their limbs or their mental faculties is, however, wholly wrong. It is not at all improbable that as high as 10 or 15 per cent of syphilitics

show changes in the nervous system which are due to the disease, but in many cases these changes do not progress, and may even fail to attract attention. Estimates of the prevalence of these two diseases vary from 1 to 6 per cent of the total number who acquire syphilis, figures which make it evident they are by no means the inevitable termination of a syphilitic infection. Persons with syphilis are predisposed to these complications by bad habits of living as well as peculiarities in the germ and the resistance of the patient, so that much can be done by the syphilitic himself to escape the fate they bear.

Late Syphilis is Preventable and Treatable.—Another word of reassurance must accompany any discussion of late syphilis. It is both preventable, and treatable. While both these points will be better understood after the discussion of treatment in general, it may be emphasized here, that adequate, skilled modern treatment can reduce the danger of developing the late complications of the disease, almost to the vanishing point. In fact, the mortality of only moderately well treated syphilis is much lower than that of most serious diseases. The ability of good treatment in the latent period, largely to forestall the real terrors of the disease, even in cases which have been recognized comparatively late, offers abundant hope to the victims in this generation. Even in still later cases which show the unmistakable signs of serious changes in important organs and in the nervous system, a prompt resort to systematic measures may repair a good deal of damage and fight off the enemy for an average lifetime. But even while we recall the hope for the victims, let us never forget that the real strategy in our battle with syphilis must be that of prevention, and that the abortive cure, and early systematic treatment have a worth that no amount of scientific patching and repair work can ever claim. The treatment of the chancre in the first few days of its existence is the treatment of meningo-encephalitis and tabes dorsalis, of cirrhosis of the liver, of syphilitic myocarditis and coronary sclerosis, of aortitis and aneurism, of primary optic atrophy and internal ear deafness, and all that roll call of strange names which blaze the path of syphilis across the field of medicine.

CHAPTER IV.

MODERN TESTS FOR THE RECOGNITION OF SYPHILIS.

Laboratory Tests vs. Medical Examination in Syphilology.—In a broad way it may be said that the criterion which distinguishes the medicine of the past from that of the present, is the dominance of the laboratory in the modern recognition and treatment of disease. In no field has this revolutionary power done its work more thoroughly or to greater advantage than in the field of syphilis. Fifteen years have seen the entire situation with respect to the disease transformed almost beyond recognition as compared with a generation ago. In this transition four landmarks stand out conspicuously as mileposts in the general advance.

The first was reached when Wassermann, Neisser and Bruck announced in 1904 the successful application to the diagnosis of syphilis, of a test made upon the blood of the patient. This test is based upon the work of two French investigators, Bordet and Gengou, and has wide applicability outside of the immediate field of syphilis, although in no disease has its service been more gratifying or more spectacular. The blood test for syphilis is now quite generally known as the Wassermann test. The second landmark of progress, in chronological order, is the discovery of the germ causing the disease, by Schaudinn and Hoffmann in 1905. The tremendous significance of this discovery for the recognition of syphilis in the earliest days of its onset, when radical and complete cure is possible, cannot be overestimated. The method of its application in the use of the darkfield microscope has already been discussed. It has a third field of usefulness which bids fair to grow into greater prominence with time—the identification of the germ in the tissues of the body after death. This will serve as the ultimate check upon our conceptions of the curability and the real prevalence of the disease. In fact it is the identification of the Spirocheta pallida in the tissues of the brains and spinal cords of patients dying of general paralysis and locomotor ataxia, by Noguchi and Moore in 1913, that first proved beyond reasonable doubt, the syphilitic nature of these complications. From the first landmark, the Wassermann test, as applied to the study of the nervous system, has arisen a third valuable diagnostic aid, the study of the spinal fluid in syphilis as a means of recognizing early invasion of the nervous system by the germ. The fourth contribution to modern warfare against the disease based on the discovery of the germ, is the development of the drug known as "606," dimethyl-diamino-arsenobenzol-dihydrochloride, which is a vital part of our modern program for the control of infection and the early cure of the disease.

The Wassermann Blood Test for Syphilis.—The Wassermann blood test for syphilis is based upon the general observation that when the body is invaded by certain germs, it develops a defensive mechanism which takes the form of the appearance in the blood of substances that poison or cripple the invaders, or in some less definite way, make conditions unfavorable for them. In the case of certain diseases, the relation between the invading germ, such as the diphtheria bacillus, and the substance produced by the body for defensive purposes, is obvious and direct. The antitoxin of diphtheria combines with and destroys the poison of the diphtheria germ, as one chemical combines with another, to neutralize it. On the other hand in certain other germ diseases the body's method of attack is less obvious and simple. The finding in the blood of substances known to bear a fixed relation to the presence of certain disease germs in the body serves as a means of identifying the disease in a particularly doubtful case. An analogy to the employment of blood tests in the detection of disease might be found by picturing the physician in the situation of a deaf, dumb and blind man wandering across a field of battle. Knowing that mustard gas is used in modern warfare, he would upon getting a whiff of it, infer that he was near or upon the scene of a battle. It is of course possible, however, that he might instead be near the laboratory of a chemical works where the gas was being made. When he identifies the gas by his sense of smell, he must go through a course of reasoning, brief though it may be, in which he will estimate the chance of being misled by the fact that the gas may be in a laboratory and not on the field of battle. Being deaf, he cannot hear, but he may feel the ground heave beneath his feet, and feel the air tremble with the detonations of guns. Correlating these additional impressions he will further be convinced that he is not in a laboratory, but at the scene of a gas attack on the field of battle. Precisely such a complex chain of reasoning applies to the recognition of a disease by a blood test. The spirochaete of syphilis, under certain conditions in the animal body, produces changes which manifest themselves by the presence of certain substances in the blood. These substances are not anti-toxins or chemicals which react directly with the germ. They may even be the products discharged into the blood by the death of the germs in their fight with the body. But under certain conditions, which constitute the limitations of accuracy of the test, the presence of these substances shows the germs of syphilis to be present. Precisely as in the case of the man who smells mustard gas, it is necessary for us after proving their presence to reason whether or not some factor may not be obscuring the test by concealing the expected substance when it should be there, or to decide

whether it is not there for some other reason than because syphilis is present. Both these factors enter into the accuracy of the blood test for syphilis, and into the interpretation of the information which it gives us. In other words, the finding of syphilitic substances in the blood of a person is simply one factor in the chain of reasoning which must be carried through in every case before we can say positively that the presence of those substances means the person has syphilis. Under these circumstances it is apparent that the test falls far short of infallibility, and that *a blunder in the reasoning of the doctor who interprets it*, or a gap in his experience is quite as important in making the test worthless as is an actual error in its performance.

Personal Equation and Interpretation in the Wassermann Test.—The mechanism of the Wassermann test is too complex for the comprehension of the average layman without an amount of detailed discussion that would be out of place here. It may be said of it in general, and in fact of every complement fixation reaction as this type of test is called, whether in syphilis, gonorrhea, tuberculosis or elsewhere, that its accuracy depends upon the technical skill, experience, and judgment of the one who performs it. Wassermann tests are constantly being performed which are valueless and the destinies of human beings are being decided on laboratory evidence which is not worth the paper on which the report is written. On the other hand, the Wassermann test, performed by an expert of large experience and high standing, and interpreted to the patient by a physician who knows syphilis, is one of the most valuable tests in medicine, and has a margin of error that is very small. Between these two extremes, one finds in actual practice every conceivable grade of understanding and misunderstanding, of efficiency and worthlessness.

The Positive Wassermann Test.—When the Wassermann test on the blood shows the presence of the disease, it is spoken of as positive, usually strongly positive. When it does not show the presence of the disease, it is spoken of as negative. "Doubtful" usually means a test of no value either way. Certain well-defined limits are set upon the value of the Wassermann test in the recognition of the presence of syphilis. First of all, the test may be positive, but is rarely so, in other diseases in temperate climates. In the tropics a rather common disease called "yaws" gives a positive Wassermann test. The margin of error on the positive side is small—in other words, a competently performed Wassermann test in the temperate zone, if positive, means syphilis in 95 to 98 per cent of cases. On the other hand, the situation is radically different with the negative test.

The Negative Wassermann Test.—A negative Wassermann test even when technically correct does not prove the absence of syphilis. A negative test while rare in secondary syphilis occurs naturally in as high as 35 per cent of syphilitics in the later stages of the disease, and in all syphilitics during the first few days of the primary sore, at which time the precious hope for radical or abortive cure exists. Therefore a doctor who depends on the Wassermann test to tell him when he is dealing with syphilis, will miss all of his cases at the time when the prospect of curing them is at its best, and will miss a liberal percentage of them late in the disease when it is vitally important they be recognized before the damage has gone too far for recovery.

Effect of Treatment on the Blood Test.—Treatment for syphilis has the power to make a positive Wassermann test negative. The amount of treatment needed to make a positive test negative may be much, or exceedingly little. Unless treatment in a patient with syphilis has been carried to the point which experience has shown us is necessary for arrest or cure, the test may not remain negative. It may become positive again within a few weeks or months after treatment is stopped. Even if it does remain negative the disease may go on working just the same. A Wassermann test may be negative on the blood for years, and the patient die of syphilitic heart disease or of changes in his nervous system. A Wassermann may become negative on the blood for a few months after insufficient treatment, and the patient then marry, only to infect his wife while his own blood still remains negative. The germs of syphilis can be taken from a mucous patch on the lip of a patient while his blood test is negative. They can even be grown from his blood while his blood shows no signs of syphilis that a Wassermann test will detect. When all this unescapable evidence of the shortcomings of the negative Wassermann test is taken into account, one may well ask, of what use it is anyhow. In reply to this question, only one thing can be said. One negative or two negative Wassermann blood tests mean nothing at all. In the presence of a reason for suspecting the disease, only a series of negative tests can mean anything as a proof of its absence. In a patient treated for syphilis, the series of negative tests must extend consistently over months and years, and even then it is not trustworthy unless the most searching examination of every accessible structure of the body shows that the disease is not in hiding. The Wassermann blood test for syphilis has no infallibilities. It is merely a part of a chain of reasoning, and its value is dependent not only upon the skill of the performer, but upon that of the reasoner.

The General Medical Examination Essential.—With this proviso, the syphilis of the examining room again claims its place, so long threatened by the syphilis of the laboratory. An opinion as to whether or not a person has syphilis, or having had it, has recovered, cannot be based upon a blood test. It depends in the last analysis upon what the physician who renders the opinion, knows about every aspect of syphilis. So few and far between are the men who know the ramifications and intricacies of the disease, that critical judgments can best be rendered by a group of physicians, perhaps under the leadership of one who has made the disease a special and lifelong study. In other words, the eye specialist and the ear specialist, the expert on diseases of the nervous system and the clinician who knows the heart, the specialist on the diseases of the bones, the expert on the skin, each may have his place beside the laboratory man with his dark field and Wassermann test. No one of them can, without presumption, claim that his assertion that there is no sign of syphilis in the particular part of the body which he knows, proves there is none elsewhere in the system. To laboratory methods we must concede almost unqualified title to first place in the recognition of syphilis by the finding of the germ in the chancre, in recurrent sores on mouth and genitals, and in the confirmation of the presence of syphilis in the secondary stage, when the Wassermann test well performed is positive in practically one hundred per cent of cases. To clinical facts as ascertained by a careful general physical examination we must, however, as the last resort look for final judgment where the laboratory tests are disappointing or inconsistent.

Spinal Fluid Tests.—The examination of the spinal fluid by the aid of the Wassermann test has developed rapidly in importance in recent years. The spinal fluid is a watery clear liquid that surrounds and supports the brain and spinal cord inside the skull and spinal column, acting as a sort of water cushion to protect them against shock. This fluid, in syphilitic disease of the nervous system, undergoes changes which prove the presence and help to identify the seriousness and extent of the damage done by the disease in the tissues of the nervous system, even when all other signs fail or leave one puzzled as to what is going on. The testing of the spinal fluid is often a necessary adjunct to the blood test in settling the question of the presence or absence, or the cure of syphilis, and as such it will attain to constantly greater usefulness.

Both the Wassermann blood test and the examination of the spinal fluid are at their best when performed by hospitals and by groups of specialists who have the means at hand to make them properly and interpret them correctly to the patient. The drawing of blood for

the Wassermann test is a trifling matter, and can be done by almost anyone. The popularity of the test has made many physicians uncritical in regard to it, and has encouraged the growth of laboratories whose tests have all the faults and inaccuracies which the peculiarities of the Wassermann reaction make possible. Until the situation is finally standardized, perhaps by government control, the Wassermann test will be abused and misinterpreted. The soundest advice that in the present state of knowledge can be given one who has reason to ask himself if he has syphilis, is "to seek *expert* medical advice," rather than "to have a Wassermann taken."

CHAPTER V.

HEREDITARY SYPHILIS.

Effect of Syphilis on the Race.—We must now take up an aspect of syphilis which makes it all but unique among diseases, namely, its transmission to the second generation. Gonorrhea affects the future of the race by making men and women childless. Syphilis affects the race by destroying outright 75 per cent of the children of syphilitic parents before they are born or during the first year of life, and by crippling or weakening a considerable proportion of those who survive. Gonorrhea as such is not transmissible to the child before birth. On the other hand, syphilis is more often transmitted in this way than otherwise, and when so transmitted is not mere constitutional inferiority, but syphilis, as definite and actual as if acquired with a chancre and secondary period during later life.

The Syphilitic Mother.—A very large body of evidence, much of which has come into existence since the Wassermann test was devised, has shown that in the great majority of cases, syphilis is transmitted to the child by its mother, rather than by its father. This means that the role of the father, if he be responsible, is in the infection of the mother. It is only fair to say that this question of paternal transmission is not wholly settled, and that there are able men who believe that the father can be responsible for the infection of the unborn child without infecting the mother. It is, however, the general opinion that a child syphilitic at birth, means a mother with syphilis, whether or not she shows outward signs. In fact, the mother sometimes shows no signs of the disease to either examination or blood test, a condition theoretically explained by her having developed a form of immunity through carrying the child. The presumption, however, is that she has the disease and should therefore be treated for it.

Mode of Infection of the Child.—Children may acquire syphilis before birth, through the transfer of the germs from the body of the mother to the blood of the child, through the placenta, the structure which connects the child with the wall of the womb. If the child acquires syphilis through the mother's blood within the first three months after conception it is almost certain to die and the body be expelled, constituting an abortion or miscarriage. If it acquires syphilis from the third to the seventh month, it may survive for a time, but is likely to be born prematurely and very probably dead. If it is not infected until after the seventh month of prenatal life, it will probably be born alive, although it may die later of the disease. The time after conception that a child in the womb

is likely to be infected varies to a certain extent with the activity and age of the mother's infection. If she has been recently infected, and there are still many germs in her body and frequent showers of them circulating in her blood, the child has almost no chance of escape. The result is miscarriage or abortion, repeated again and again whenever the woman becomes pregnant. Some of these abortions occur so early that the woman may think she is simply suffering from irregular menstruation. As the mother's infection becomes older and less virulent, the child is not infected until later in the pregnancy, or may even escape altogether. It may die if infected, resulting in a still birth, or it may live and show its first signs in the first few months after birth. Again, it may live, seem in fair health, and show no signs of the disease until it is from five to ten years old. A few cases do not show any signs until much later, even as old as twenty-five years.

Treating the Mother May Protect the Unborn Child.—No fixed rule applies to the birth of syphilitic children from a mother who has the disease, although usually a series of abortions is followed by a still birth or two and finally by living but syphilitic children, as the activity of the mother's infection subsides. A syphilitic mother whose disease has been temporarily reduced to inactivity by treatment in the later stages may give birth to an entirely healthy child, and women who still have active syphilis may occasionally have children who escape. Even a woman who is in the secondary stage of syphilis, whose pregnancy is recognized in time may apparently give birth to a healthy child if she is intelligently and systematically treated for syphilis herself all during the period she is carrying the child. Once again, a woman who acquires syphilis just before the child is to be born, and who has a chancre or mucous patches on the neck of the womb or in the vaginal birth canal, may give birth to a healthy child whom she infects as she brings it into the world. This variety of syphilis in children is comparable to birth infection with gonorrhea and is true congenital as distinguished from uterine syphilis. It runs the same course as the adult form, with a chancre, often on the navel, and a secondary eruption as in the acquired case.

Effect of Inherited Syphilis on the Child.—Uterine syphilis in the child gives rise to changes in its body which are more profound than those which occur from the acquired form. The child being literally filled with the germs as it is coming into being, is distorted to some extent by the disease. Changes in the bones, in the teeth, and in the internal organs occur which have much in common with late syphilis. But if the child does not die outright before or within a year or two after birth, the intimate association of its body cells

with the germs gives them, paradoxically, an advantage. Such children must have a high resistance or they would die. For this reason, children with uterine syphilis after the first high mortality, have an excellent fighting chance, *which if reinforced by intelligent treatment,* may permit them to develop into practically normal men and women.

Symptoms of Syphilis in the New-Born.—Children with syphilis who are born alive, sometimes seem outwardly normal at birth. Quite a number of them die, however, soon after birth from convulsions and other internal ailments. As a rule, however, the syphilitic child presents at birth a striking example of the power of the germ of syphilis to age the human body. The child looks weazened, withered, so to speak, at the root. The face suggests a little old man, the child is under size, and within a few days or weeks of birth begins to show outspoken signs of the disease in the form of "snuffles" or running nose, often taken for a cold, and changes in the vocal mechanism which convert the normal cry into a squawk. Skin eruptions especially large blisters, mucous patches, and large sores may appear, and unless treated, the child rapidly declines. Extraordinary variations in the picture presented by syphilis in the child may occur. Not every child with a skin rash and a feeble cry is syphilitic. On the other hand, it is a wise caution that sends the mother or the woman in charge of sickly children to the doctor when something abnormal develops, and it is a wiser caution that keeps healthy women from meddling with others' sick children until they are properly advised by a competent physician. A caution may well be given here also with reference to the wet nurse, who should never take up the care of a child except under the direction of an expert physician who can protect her from the risk of nursing a syphilitic baby who will promptly transmit the disease to her. Vice versa there is no better way to infect a well baby than to give it to a syphilitic woman to nurse. Fortunately the best modern technic, which simply draws the woman's milk and feeds it to the baby after proper sterilization will reduce the risk of such transmission of the disease. There is no better evidence that the mother of a syphilitic child has syphilis, than the fact that she cannot acquire it from her own nursing baby even though the baby has a mouth full of mucous patches.

Late Effects of Inherited Syphilis; Imbecility, Eye and Ear Trouble.—Uterine syphilis in older children may repeat the course of syphilis acquired in adult life, even to the development of juvenile locomotor ataxia and general paresis. On the other hand, it has some distinctive features. About five per cent of children who are idiotic are so because of syphilis. Many syphilitic children

show distinctive changes in the teeth and certain bones, which can be recognized even though the Wassermann test may be and frequently is negative. While the large majority of syphilitic children are below par physically, it often seems as if they had a precocious mental development not unlike that seen with rickets, which makes them by no means degenerates, but valuable assets in human life once their infection is brought under control by treatment. Heredo-syphilitic children are subject to a peculiar type of eye trouble, called interstitial keratitis, which clouds the cornea or glassy part of the eye so that not over 60 per cent of the cases which have it recover with vision unimpaired. Many of these children lose their ability to earn a living and become burdens upon the family, the community and the state. A few children are made totally blind by syphilitic changes in the nerve of sight. A similar but much commoner type of change occurs in the nerve of hearing, resulting in total and irremediable deafness. In the infant it is recognized by the child's failure to learn to speak, and if it develops before the tenth year the child is likely to become dumb, either because it does not learn or forgets how to talk. The inmates of deaf and dumb asylums and schools present in all probability a high proportion of heredo-syphilitics, although just what proportion is not known.

Hereditary Syphilis and the Third Generation.—One or two additional points deserve mention. Hereditary syphilis in the strict sense is probably not transmitted to offspring—that is the children of hereditary syphilitics do not have abortions and give birth to syphilitics as do their parents. On the other hand there is room for disagreement on this point, and able men again believe that the germ may be handed on for more than two generations. It is generally conceded that a tendency to constitutional inferiority appears in the children of parents who have severe forms of hereditary syphilis. Those who have hereditary syphilis in mild form, however, may if efficiently treated, give birth to healthy children.

Public Responsibility in Hereditary Syphilis.—Syphilis in adopted or orphaned children should be much more a matter of concern on the part of the state than it is. Careful Wassermann tests on mother, father and child should be available in every baby offered for adoption, and the risk of a concealed infection will be diminished if, where there is doubt, adoption is deferred until after the second year. Children who prove early or later in their lives, to have the disease, should not be offered for adoption, but should be cared for and treated by the state. The contagiousness of hereditary syphilis and its treatment will be discussed in connection with these aspects of the disease as a whole.

CHAPTER VI.

THE TREATMENT OF SYPHILIS.

From the standpoint of treatment, as in other ways that have been mentioned, syphilis occupies a distinctive place in the hierarchy of disease. In the domain of general medicine there is a small group of ailments whose successful treatment presents the dramatic and spectacular quality that makes surgery, for instance, so attractive to the majority of physicians. Malaria is the oldest member of this group. The control of malaria by quinine is a medical miracle which never loses its power to astonish because it is so familiar. In the same way, the control of syphilis by the drugs both ancient and modern which are used against it, contains all the dramatic elements that add zest to the work of him who treats it and give hope to those who look for its ultimate extermination. The treatment of syphilis has what the treatment of gonorrhea lacks, weapons whose efficiency stands all but unrivalled in the practice of the healing art.

The Treatment of Syphilis with Mercury.—Mercury throughout the five centuries intervening since the wholesale spread of syphilis over the world has sustained much the same relation to the disease that quinine has to malaria. The ability of this drug to cause the outward signs of the disease to vanish was early recognized, and its wholesale and over-enthusiastic use for a time threatened to retire it to obscurity rather than to develop its effectiveness. Mercury is a poison, and gives rise to symptoms at times only less serious than the disease itself. In fact it acts only by being more poisonous for the germs than for the tissues of the body itself. For that reason its proper use was only slowly developed, and its limitations are set, not so much by the fact that more would not kill spirochetes more effectively, but that more might kill the patient. While the action of the drug in the body is usually thought of as directly upon the germs, it seems very probable that while this element is of course important, mercury is even more effective in stimulating the body to make its own fight. For that reason it occupies a unique and indispensable place in the management of the disease.

Mercury is given in syphilis in a variety of ways. In all cases it is the metal itself, or its salts that is used. Mercury taken by mouth as pills or solutions of its salts attained intense popularity among the French school of syphilologists, but has now been shown to be good enough for glossing over external signs, but of little real effect in bringing about a cure. Especially in the early stages of the disease, when we stake everything upon the hope of early and complete results, mercury by mouth is an anachronism and a snare.

It has had a most unfortunate popularity among the past generation of physicians, and many a man who develops serious signs of late syphilis in later life owes his plight to his doctor's prescription of mercurial pills in the days of his chancre. Pills have their place, undoubtedly, but their field of effective action is very limited. Mercury is also given by injection of various salts under the skin or into the muscles at various intervals, from which tissues the drug is absorbed into the blood. This form of treatment, often spoken of as German, has many advantages, and in the hands of the expert has a high degree of efficiency. Mercury is also given by incorporating the metal with a grease or salve and rubbing it into the skin from which it is absorbed in part directly and in part through the lungs from evaporation and inhalation. This method known as the inunction, is in the opinion of many syphilographers the method *par excellence* for administering mercury in the treatment of syphilis. It has the disadvantage of seeming dirty and smudgy and thus offensive to particular patients. But for the certainty of its action, and its ability to combine high doses with minimum ill effects, it stands unrivalled, and only fails to attain its highest usefulness through objections based on trivial annoyances rather than on the actual best interests of the patient.

Mercury Does Not Control Contagiousness.—The technic of the treatment of syphilis with mercury, the times and ways and reasons for its employment cannot be discussed here. Its intelligent use is perhaps even more than in the case of quinine in malaria, an art in which a true expertness may be developed. The last five years of the practice of syphilology have only served to raise mercury in the estimation of discriminating observers. Monumental though the progress made possible by Ehrlich's discovery of salvarsan ("606") has been, the new drug has not displaced its older brother as an essential in the cure of syphilis. The one great defect of mercury from the standpoint of the public health is its inability to control contagiousness. A patient receiving it by the most vigorous methods known may none the less in the early, contagious stages of the disease develop recurrent sores in the mouth and elsewhere, which make him a danger to others. It is precisely this lack in the older methods of treating syphilis, which "606" supplies, and it is this combination of qualities obtained by the use of both drugs which justifies the statement that no man today treats syphilis effectively who does not use both "606" and mercury.

The Discovery of Arsphenamine—Ehrlich's "606."—The story of the discovery of arsphenamine (salvarsan) as it is now called in the United States, is a chapter in the romance of scientific discovery of which only a glimpse is possible here. Arsphenamine is the

American technical name for the substance known as Ehrlich's "606" which was later patented in Europe and the United States under the name of salvarsan. Arsphenamine is a compound of arsenic with substances derived from benzol, the chemical agent which forms the basis of modern organic chemistry. It is to all intents and purposes a dye. Certain dyes are poisonous. The action of arsphenamine upon the germs of syphilis is based upon Ehrlich's realization that if a poisonous dye or stain could be found which would pick out and attach itself to the spirochaete of syphilis and poison it without doing the same thing for the cells of the human body, a means might be found to kill the germ directly in the tissues and the blood. This selective affinity of dyes for certain tissues or for certain germs is, of course, familiar in medicine, but Ehrlich's application of it to the problem of syphilis was unique and was said to have been inspired by the effect of trypan red, a special dye, upon germs related in some respects to those of syphilis. After prolonged experimentation, Ehrlich and his Japanese collaborator, Hata, with the cooperation of the chemist Bertheim, succeeded after 606 attempts (hence the name "606") in producing the substance dimethyl-diamino-arsenobenzol-dihydrochloride, which was found by animal experiment to be able to pick out and kill the spirochaete of syphilis in the blood and tissues without appreciably injuring the infected animal. It is not too much to say, incidentally, that had the germ of the disease not been discovered by Schaudinn and Hoffmann, and the transmissibility of the disease to animals demonstrated by Metchinkoff and Roux, the work of Ehrlich would probably have been neither inspired nor carried out. Nothing better illustrates the cosmopolitan status of scientific progress or the interdependence of scientific men upon one another, regardless of race or nationality, than the modern advances in the knowledge of syphilis. Nor is it possible to conceive a better justification of experimental work on animals than that afforded by the results of the combined efforts of these scientists.

The Commercial Status of Arsphenamine.—After a long series of careful experiments to determine its efficiency and freedom from danger, Ehrlich finally announced the discovery of "606" to the world in December, 1910, and turned the formula over to a German firm for the manufacture and marketing of the drug on a commercial scale. In accordance with the accepted custom in Germany, the drug and every detail of its manufacture were carefully protected by patents in all countries. The tragic but little appreciated result was that long after the legitimate claims of the inventor had been satisfied, and in this particular Ehrlich was most unselfish, this drug, so precious a necessity to the world, remained a private

monopoly, exploited at a price that placed it out of the reach of the poor except as charity made provision for it, and restricted in its usefulness by merely dollar considerations. It required the commanding necessities of the war to bring these facts to light, and to open the way for competition to increase its accessibility. In practically all important countries, the drug is now being manufactured under government license and a variety of names. In the United States the short-sighted stringency of the patents for a time prevented the open manufacture of the drug after the English blockade cut off German exports. The monopoly and high prices continued and there was a prolonged period when the medical profession and the sick of this country were virtually deprived of what should under a more enlightened public policy have been cheap and abundant. The drug was even for a time imported from Germany by submarine in the effort to maintain control of the patents. Finally, after the declaration of war with Germany, action became imperative. The Adamson Act was then passed, providing incidentally for the manufacture of arsphenamine by American firms of demonstrated competence, under federal license. This has placed the United States for the time being on the same basis as European nations. The tremendous profits reaped by the German monopoly are apparent from the fact that the price promptly fell from $4.50 to $1.25 per dose. The restoration of ante-bellum prices for raw materials could greatly reduce even this figure. It must not be forgotten that the present satisfactory situation is for the duration of the war only, and that public opinion back of a fundamental revision of our patent laws is necessary to make the change permanent. It is not too soon to begin to impress upon American legislators in unmistakable fashion, that ideas and substances capable of altering the history of the race through their influence on public health and welfare, cannot remain private monopolies and reap exorbitant profits for owners and exploiters after the reasonable claims of the inventor are satisfied.

The Fallacy of the One-Dose Cure.—Arsphenamine was introduced into medicine with an initial fallacy due to its extreme effectiveness in animals, and the spectacular character of its action on syphilis in man. Ehrlich hoped that it would accomplish a cure of the disease in a single dose. This idea, now fully understood to be erroneous, gained an unfortunate publicity which will in the course of the next decade result in a good deal of late syphilis in patients whose early signs were cleared up but whose disease was not cured, by the single injection which they received.

The Action of Arsphenamine.—Arsphenamine is given in a variety of ways, the most widely used being direct injection of a solution of

it into the blood through a vein. It combines in some way with the tissues of the body and the elements of the blood, and the combination, apparently, is deadly for the germs, but almost harmless, in the doses used, for the human body. The effect is quite miraculous. Within twenty-four hours after a single injection, not a spirochete can be obtained from any lesion on the body, although mucous patches and condylomas may have swarmed with them before the treatment. In the same way arsphenamine is able to wipe a syphilitic eruption from the skin almost as a wet sponge cleans the schoolboy's slate. Its effect therefore is to control contagiousness with incomparable efficiency, and to produce spectacular and rapid symptomatic results. It requires repeated injections to make the effects lasting, however, and mercury must be invoked for final cure.

The value of arsphenamine has one qualification from the patient's standpoint. Too little of it may be worse than none at all, and may bring on gummatous changes before the secondary period is well over, this through certain peculiarities in the immunological mechanism of syphilis. If the administration of mercury requires a refined therapeutic judgment, the management of arsphenamine treatment of a patient requires even more, and too much or too little may lead to unforeseen consequences. The administration of the drug at competent hands is not dangerous, but must be surrounded with precautions established by experience. Modifications of the original Ehrlich "606," particularly "914" or neoarsphenamine, are used, but the detail of their employment has no place in this discussion.

CHAPTER VII.

THE CURE OF SYPHILIS.

What is Adequate Treatment?—The adequate treatment of syphilis, by whatever means it may be approached, is not a matter of days or weeks, but of months and years. In this simple statement lies four-fifths of the problem of the disease in personal and social life. The hold of the Spirocheta pallida upon the human body, once it is established, in the overwhelming majority of cases cannot be broken except by wearing it out, so to speak. Nothing is easier to control than syphilis so far as many of the symptoms are concerned. A few pills even, may make a new man of many a wreck. But nothing is more inexorable or more unexpected in its "come-back." Inadequate treatment carries more than the danger of a failure to cure. It makes possible under an outward aspect of calm, the recurrence of infectious lesions, the transmission of the disease to others, and the progress of the disease in the internal structures, under a skin kept clean and whole by halfway measures. Just what constitutes adequate treatment can only be determined in the individual case. It may be safely said that the three or four injections of arsphenamine and a few mercurial injections or rubs which many patients get, is not adequate. One or two negative Wassermann tests are no measure of adequacy, popular though this fallacy is. Our last resort must often be the old rules of thumb which still retain a place in the management of the disease that cannot be shaken by any of the epochal discoveries of the last twenty years. In fact some of the most recent work on syphilis is tending to show that what even a good deal of treatment accomplishes is simply a reduction of the infection to harmlessness, rather than a cure signalized by the killing off of all germs.

An Interpretation of the Cure of Syphilis.—In the face of such considerations, it is becoming increasingly difficult to tell the patient just what cure means and what will secure it. It should in general be understood that for all practical purposes, cure means lifelong freedom from all symptoms and signs of the disease, and no risk of transmission to others, hereditarily or directly. Even abortive cure, to which we pin our hopes, still contains a liberal admixture of faith, which only the clarifying influence of time can justify or discredit. To tell a man with a four-day-old primary lesion that six months of treatment will cure him is near-folly—to tell him that a year will do it is rash, to tell him that two years will see him well, is to enter the borders of conservatism. In the fully developed secondary case, not only are two and perhaps three years of systematic treatment necessary, but there must be a succeeding

period of probation before cure is confirmed in which the patient must show no signs of the disease, not only to the Wassermann test, but to a variety of other examinations intended to reach all the structures that syphilis is known to affect. This advances the average period of time before the pronouncing of a cure in a fully developed case in the secondary stage, to five years from the time treatment was begun. All that can be said of a cure thus carried out, is that its value while not absolute, is born out by the overwhelming mass of human experience with the disease. The risk of persistence of a syphilis after these demands have been satisfied is comparable to the risk of death that is inseparable from the mere fact of living. So far as our human fallibility allows, we say that the average man who has had a fully developed secondary syphilis treated by the most modern methods for three years, and has been free from every symptom and sign for two years after all treatment is stopped, has returned to the class of insurable risks. He is less likely to have a relapse than he is to fall from the top of a building or be hit by an automobile rounding a corner.

The Time Factor in Cure.—Time is a vital factor in the treatment of syphilis, and the time at which treatment is begun is no less so than the time for which it is continued. Abortive cure depends on time and the recognition of the germ. Similarly the outlook on late syphilis once past the secondary stage depends on the age of the infection and the damage already done. In late syphilis of the nervous system and of important organs, we do not speak of cure, rather of arrest and the reinforcement of the patient's resistance from time to time by treatment, until he shall have lived out his days. Just at what moment in the life history of an infection the bright outlook of primary and secondary syphilis passes over into the less hopeful prospect of late syphilis can be decided only in the individual case and by the conservative instinct of the syphilographer. Personally, the author believes the disease to be curable in its earlier stages, but does not encourage any patient to cast all caution to the winds and rely implicitly on a dramatic word of final release—"you are cured." Occasional expert observation through life for the person who has had syphilis has the same value that it has in tuberculosis, as an insurance against the fallibility of human judgment.

Determination of the Fact of Cure.—The answering of the question "Am I cured of syphilis," like the settlement of the question of the cure of gonorrhea, is often a matter for experts. The first essential of proof is a series of negative blood tests covering a period of from one to two years. Many syphilographers believe that a special series of tests called a "provocative" should be carried out.

This consists in taking blood tests at various intervals within a month after an injection of arsphenamine ("606"). It is increasingly the belief of men who see a great deal of late syphilis that no case should be discharged from medical care without an examination of the spinal fluid by an expert, since syphilis of the nervous system may remain concealed for years before the outbreak, and only be recognized during the latent period by the testing of the spinal fluid. An examination to prove the cure of syphilis should also extend into every nook and corner of the body, with tests of the eyes, the ears, and other important structures by specialists competent to pass an opinion upon them. Only by this apparently needless precaution is it possible to reduce the chance of a mistaken or premature decision.

Treatment of Hereditary Syphilis.—The treatment of hereditary syphilis is in many respects a much more hopeful matter than a consideration of the nature of the disease suggests. Children who survive it are aided by a resistance that is an invaluable asset. If systematic intense measures could be applied to every mother who has syphilis, while she is carrying the child, we would witness an immediate and surprising decrease in the transmission of the infection to offspring. So effective is this treatment of the mother before the birth of the child that it is the bounden duty of every physician called upon to deal with pregnant women to be familiar with the essentials of syphilology and to secure for those under his care proper expert investigation and treatment if the findings show the presence of the disease. If the new-born child has syphilis, its preservation depends upon constant unremitting care combined with skilled treatment. The baby must be nursed by the mother. In older children the treatment of the complications of hereditary syphilis becomes a problem for the state. The successful treatment of interstitial keratitis, for example, may call for months in the hospital and may delay the child's education enough to damage permanently its social efficiency and waste its mental powers. The Scandinavian countries, through the influence of the great syphilographer Weylander, treat these children in special school-hospitals, or homes, with really wonderful results. Few experiences are more gratifying to the expert than to transform the little shrunken body with its bowed head and aching, red, and all but sightless eyes, into robust and laughing youth. The State of Michigan is conspicuous in this country in its provision for the care of children who can be benefited by medical treatment, those with hereditary syphilis among the number.

CHAPTER VIII.

PUBLIC AND PERSONAL HYGIENE OF SYPHILIS.

Summary of Facts Regarding Contagiousness.—We have now reached the point where it is possible to summarize the problem of syphilis as it concerns personal and public health. Syphilis is a contagious infection. For practical purposes, it is a danger to others only during the primary stage, the secondary stage, and such part of the latent period as may be marked by the recurrence of contagious lesions about the mouth and genitals. Any syphilitic lesion in the stages named is *dangerous if it is moist.* The sores of late syphilis, occurring as they do after the larger part of the germs have died off in the body, are not dangerous. In fact, it may be said of syphilis in general that danger is inversely proportional to glare and conspicuousness. There move among us every day persons with dangerous syphilitic lesions, for whom we would never think to turn aside, though we would shun one who had a harmless "running sore" as if he were a leper. Categorically, the important principles governing the transmission of syphilis may be summarized as follows:

The disease is transmitted only by the transfer of the germs. Personal, immediate contact with an infectious sore or lesion stands first and foremost in the spread of the disease. The germs of syphilis cannot live long away from the body, or in the presence of air. They are killed at once by drying. They are not distributed about by objects that have only remote contact with syphilitics, such as furniture, door knobs, bath tubs, and even toilet seats. The dangerous articles are instruments recently used, articles that are put in the mouth, such as silverware, cups, pipes, etc., clothing or dressings moist with discharges. Germs of syphilis deposited on foreign objects, die at once on contact with so weak an antiseptic as soap and water. The washing of all personal articles in hot soap suds effectually sterilizes them so far as this disease is concerned.

Non-genital Syphilis.—Syphilis is non-genital—that is, the primary sore occurs elsewhere than on the genitalia in from 5 to 10 per cent of all cases. These are older figures, and a greater expertness in recognizing the early onset of the disease will increase the amount of non-genital syphilis recognized. Physicians and nurses, and also members of families in which there is a careless syphilitic, or in which there is crowding and bad hygiene are conspicuous victims of this mode of acquiring the disease. It is said that in parts of Russia, genital infection is the exception, and non-genital the rule, and the same observation was made by Tullidge in connection with Austrian troops in the war. The chancre may ap-

pear on the lip, the tongue, the tonsil, the eye, the finger, the nipple or any other part of the body, even to the septum of the nose and the palm of the hand.

The Engagement Chancre.—An important phase of extragenital syphilis is the syphilis of intimate non-genital contacts—kissing and caresses. Into this group fall the engagement chancre on the lips of the young girl whose fiancé acquired his infection by resorting to some other woman for the relief of the excitement of his courtship; the chancres on the eyelids, the lips and the cheeks of children from the kisses of infected parents or brothers and sisters, or from strangers; the chancres of the finger that are acquired in other than innocent ways.

Genital Transmission of Syphilis.—The genital transmission of syphilis covers from 80 to 90 per cent of all cases, according again to older figures. About 50 per cent of the infections of married women have seemed to me to be contracted in marriage, though Fournier gave 20 per cent as his estimate. The physiological reasons for the importance of genital transmission have been discussed. No person who dispassionately reviews the facts can long cherish the belief that guilt or innocence has any part in the developments of the peculiar habits of the Spirochaeta pallida, or maintain that the innocent and loyal wife or husband or the unknowing, unoffending child should be besmirched by our prurience simply because the organism is an anerobe of low vitality, requiring special conditions for its growth.

Duration of Contagiousness. Effect of Tobacco, Dirt, Etc.—The average syphilitic infection, untreated, must be rated as contagious for a period of at least five years from its onset. Lapse of time with progress toward the non-contagious tertiary or late stage, sooner or later disposes of the public menace of every syphilitic. This is scant consolation, however, when it is recalled that the contagious periods of the diseases of children for example, seldom occupy the number of days or weeks that syphilis does years. The contagiousness of syphilis is increased by anything which tends, as do tobacco, dirt and irritation, to produce moist recurrences about the mouth and genitals. The contagiousness of syphilis is diminished, and the danger period shortened, by modern treatment.

Arsphenamine in the Control of Contagiousness in Syphilis.—Any device or remedy which shortens the contagious period of an infection, has life-saving value. In this class we must place arsphenamine, whose ability quickly to destroy the germs of syphilis in contagious sores is one of the most brilliant contributions to the modern campaign against the disease. Quarantine for syphilis, as it is practiced in other contagious diseases, is impracticable, and

fortunately it has at last become unnecessary. A twenty-four hour stay in a hospital with a single injection of "606" does away for the time being with the need of it. It should never be forgotten, however, that it is a short-sighted policy which provides only enough arsphenamine to temporarily destroy the germs. Such a policy inflicts deliberate injury upon the patient by exposing him to the risk of dangerous complications, and does not protect the public from his relapses any more effectively than the old-time use of mercury. Every case must be adequately treated from the broad standpoint, as syphilis, not from the narrow point of view of merely reducing contagiousness for the time being. By adopting the former standard, and backing it with our dollars and our laws, we will best serve both the interests of the public and those of the patient himself. Good all-around treatment with salvarsan and mercury, while it can never unconditionally guarantee the non-infectiousness of a syphilitic, least of all in the intimacies of life, can none the less reduce the risk in ordinary relations practically to the vanishing point.

Personal Responsibility in the Transmission of Syphilis.—There enters into the control of syphilis as a contagious disease, the same problem of personal responsibility which appears in gonorrhea. In those who are ignorant, the transmission of syphilis to others goes on unawares; in those who are indifferent, the risk of infecting others is ignored—sometimes even deliberately recognized and employed as a means of vengeance. The extent of irresponsibility in the transmission of the disease is large, and it bears no direct relation to the supposed intelligence of the person who transmits the disease. I have known Croatian laborers who barely understood the words in which they were addressed, to take precautions to protect others which conformed to an ideal code of unselfish consideration. On the other hand, I have had trained nurses, infected in illicit sexual relations, leave my consulting room after the most explicit instruction as to the danger for others, and marry healthy partners before they were non-infectious. The transmission of syphilis is too often dependent on a character factor which no amount of treatment can reach. The rapidly developing modern public health program for the control of genital infections is fortunately taking account of this phase of the problem, and is placing the irresponsible syphilitic within the grasp of the law. Syphilis gives even the conscientious patient all too few reminders of his duty. A little treatment, and everything including the patient, vanishes. I remember in my own dispensary days the signal that marked the intention of many a patient to pronounce himself cured and disappear. A basket of tomatoes, or some fruit, or a box of

cigars would appear on the window sill and then there would be a vacancy in the treatment line, perhaps all that was left to symbolize the value of hours of as ardent persuasion on my part and as complete a good will as ever glorified an evangelist pleading for a lost soul. Now with the plenary powers of the police and the searching eye of the social worker to aid, the old-time shrug and "What's the use" that was our only resort in our struggle with irresponsibility, has lost its sardonic meaning. A great deal of syphilis can be held to treatment and to a hygiene which protects others, through the personal effort of the physician. That part of it which declines the voluntary assumption of its responsibility must be forced, and forced it will be.

CHAPTER IX.

SYPHILIS AND MARRIAGE.

The fitness for marriage of a person who has had syphilis must be judged by two criteria. It is a matter of some importance that the non-infectious marital partner be able to measure up to the social responsibilities of marriage. Williams[1] showed for example, in an investigation of 100 men dying in Massachusetts of syphilitic insanity that 78 women and 109 children were thrown upon society without the protection of a wage-earner, the state paid $39,312 for the care of the men alone, and ten of them represented a financial loss of $212,248. It is therefore usually inadvisable for patients exhibiting serious late complications which are likely to incapacitate them, to marry, even though there is no risk of transmitting the disease, unless the partner knowingly assumes the risk of having an invalid on his hands. Patients in the infectious stage of the disease should be governed by the so-called Hoffman or five-year rule, which is practically identical with the standard for cure in the fully developed case of secondary syphilis. There is a tendency on the part of a few observers to let down the bars on the strength of the effectiveness of modern treatment. In the opinion of conservative syphilologists, however, this relaxation is premature. It is safe to say that there is no longer any justification for the prolonged restrictions covering most of a life time, advocated by men of the past generation, like Fournier, whose experience was affected by the relative inefficiency of the methods of treatment then employed. It must be emphatically stated that the same rule should apply to the engagement to marry that applies to marriage itself. The American engagement is a period of informality and intimacy which may even be synonymous with the most intimate contact. No person having the welfare of a young girl in charge is justified in permitting her to enter upon an engagement, or intimacies approaching it, that cannot be thought of as terminating in marriage. The careful investigation of the actual or potential fiancé is the only way to avoid the all too frequent lip and tonsillar chancre in trusting girls.

Syphilis and the Medical Examination Before Marriage.—From the syphilologic standpoint the determination of the fitness of a person who presents himself for medical examination before marriage offers problems not unlike those which beset the examination of gonorrhea. The value of the certification must depend to no small extent upon the status of the examiner as an expert on syphilis. If he knows so little about the disease as to be content with a single negative Wassermann test, which by the way is the favorite

[1] Williams, F. E.: Relation of alcohol and syphilis to mental hygiene. Am. Jour Pub. Health, 1916. vi, 1272.

legislative sop to public sentiment on this matter, his opinion will be worth exactly nothing. A thorough physical examination is necessary, an honest history from the patient, some acquaintance with his family tree and traditions, and repeated confirmatory tests upon the blood. If there seems ground for suspicion, the complete procedure for determining the fact of cure may be undertaken with its "provocative" blood test, examination of the eye, ear and nervous system, and of the spinal fluid. It is obvious that this is, in the vernacular "a large order," and will not attain to popularity without a prolonged and vigorous educational campaign. The physical fitness of candidates for marriage should be the occasion for an all-around family conference on both sides, with seats at the conference table for both the medical expert and the minister. The laws which govern professional medical confidence, and protect the secrets of rascals should on this occasion be adjourned, as they are now in the progressive state of Ohio for example."[1]

Responsibility of the Church.—The church has, I believe, a little appreciated and much needed power in this matter. In these days it takes a man or woman of more than ordinary force and determination to brave the inertia of popular silence, distrust and misconception, and insist that the one he or she loves and trusts, shall be appraised on the score of physical fitness for the relation into which they shall enter. The vigorous and determined stand of the clergy in support of physical examination of candidates for the religious ceremony will go far to bolster the timid and spread the new conception of responsibility. The author had the experience of seeing the photograph of a partially treated patient and his bride appear in the pages of a supposedly progressive newspaper. On reading the paragraph accompanying it, he found that this enterprising journal had furnished even the officiating minister who made this marriage possible. All that remained for him to do was to pray that the arsphenamine he had injected so long as the patient chose to continue treatment, would do double duty. How much better would it have been, and how much more progressive, if the minister who unknowingly contributed to this consummation had swung his influence against the snap-shot marriage and avoided even the semblance of acting as stool pigeon to an irresponsible. The church has a mission here which it cannot long neglect.

Responsibility of the Medical Profession.—The medical profession must in its turn bear its share of the blame for marriages consummated after inadequate tests. "But the doctor told me I was well—he said my blood was clean" (Wassermann negative) is an all too familiar cry from fathers when examination of mother and child

[1] Amendment to Section 1275, General Code, p. 177.

shows the presence of the disease. Until, for one thing the newer standards for the detection and cure of syphilis have become the common property of the medical profession, or the care of the disease is concentrated on the hands of experts, it will be futile to expect striking results from the medical examination of candidates for marriage.

Summary of the General Outlook.—The extinction of syphilis is a consummation in public health which has more prospect of concrete fulfillment than in the case of any other of the four great modern plagues. Tuberculosis, while a disease of known cause, lacks the means for such effective treatment and control of contagion as are available in syphilis. Cancer is still shrouded in obscurity—of unknown cause, of terrific fatality, definitely remediable only in its earliest stages, little understood as to its prevention. Gonorrhea, preventable, but with its long period of uncontrolled infectiousness and train of complications following upon a neglect which the disease itself encourages in every possible way, lacks also the striking, the effective, the specific cure. Syphilis alone of the four is at our mercy. A method of prevention to be discussed later, whose efficiency is very high; methods of treatment which bid fair to cure nearly every case taken in time; methods of recognition in the form of blood and other tests which have some of the smallest margins of error in medicine; control of contagiousness which is more absolute, immediate and effective than the most rigorous quarantine, all point to possibilities, whose realization is only a matter of time. A matter of time, and of public education—for nothing stands out more clearly than the fact that our refusal, not our inability to control, explains the existing situation. Free, abundant, effective early treatment and preventive measures, with compulsion where necessary, will from the medical side, enable us to hold the situation in the hollow of the hand. That the medical solution shall be touched with idealism and inspired by great principles, must be our next concern.

PART IV.

THE SOCIAL, PSYCHOLOGIC, AND ECONOMIC BACKGROUND OF SYPHILIS AND GONORRHEA.

CHAPTER I.

THE PUBLIC VIEWPOINT.

Every bodily ailment has its social and psychologic background—a fact that physicians themselves are often only too prone to forget, or to ignore under the mistaken belief that such detachment is an essential part of the scientific point of view. No presentation of the subject of syphilis and gonorrhea can lay any claim to breadth or completeness which does not point out at least the principal factors in human nature and the social order that underlie the powerful hold that these diseases have upon the race.

The Inertia of Public Opinion.—The medical consultant on the genital infections must have the spirit of a pioneer and aim to mold public opinion. Too often he is thought of as a devil's porter, busy throwing wide the gates. About him there seems at times to lie a vast, and occasionally a vociferous wilderness of ignorance, prejudice and distrust. More to be feared than outspoken aversion and contempt, is, too, a certain silent, veiled, but peculiarly intense and irrational hostility which sometimes marks the thought of those who are otherwise intelligent and cultivated people, on the question of what to do with, and for, the syphilitic and the man or woman with gonorrhea. The physician himself, to whom no sickness should be alien or deserving of less than his best, too often feels that syphilis and gonorrhea are in a class by themselves and leaves them coldly to the exploitation of quackery and incompetence. His attitude is simply a reflex of the public thought. It still takes a measure of hardihood, even in this comparatively enlightened day to permit one's name to become synonymous in a locality with a trafficker in the unmentionable, the dubious shepherd of black sheep. Yet after all there is something to inspire in the work. Those who can bring to the care of the modern venereal leper the spirit of a Father Damien will have a real mission. There are few who reap more generously the rewards of gratitude and whole-hearted fellowship than those who are able to appreciate and lighten the trials of that portion of the sick whom public misunderstanding condemns without a hearing. False tradition is not adamant. For those who attempt without cynicism and with adequate special knowledge to illuminate the problem of sex diseases it seems as if there must exist an actual and definite public need, and a promise of public comprehension and response.

The state of public opinion on syphilis and gonorrhea can best be appreciated by an effort at critical analysis. It has a definite psychology. The inertia that seems to characterize it is not hopeless. It can be traced to a half dozen or so of more or less conflict-

ing and inhibitive points of view. To attack and demolish or to reconstruct these individual misconceptions is to convert the heathen and uphold the larger gospel "Salus populi suprema lex."

An Analysis of Current Misconceptions.—My own experience with the psychological problem has led me to summarize the basis of this longstanding public indifference and antagonism under the following heads:

1. Ignorance of the facts in regard to the tremendous prevalence and wide distribution of syphilis and gonorrhea. Very few people possess the special knowledge to convince them that these diseases cannot be evidence of inherent disreputability and viciousness, or the property of any special class.

2. Confusion of the issue with the problem of commercialized prostitution.

3. Exaggerated notions of the contagiousness of syphilis and gonorrhea, especially the former.

4. The belief that the horrors of syphilis and gonorrhea have moral value—that they act as deterrents to sexual license.

5. Pharisaical self-righteousness.

6. The belief that syphilis and gonorrhea are well-deserved punishments visited upon offenders against moral and natural laws.

Public Ignorance of the Facts.—Public ignorance of the facts is an outstanding and basic factor. Even highly trained, cultivated and well-informed people, not excluding from that number physicians of wide experience, still cherish the lingering belief that syphilis is largely, and gonorrhea almost entirely, a proof of moral degradation and the property of down and outs. If sexual longings and illicit gratifications were limited to a few, and if absolute sexual regularity were the only proof of sound character, the bulk of humanity would have to be classed as vicious and degraded. It is not cynicism that prompts the syphilographer to urge the dropping of all social distinctions in the survey of the situation in his field. It is a far more sordid cynicism that can believe so ill of human nature as to hold that because 60 per cent of men have had gonorrhea, 60 per cent of men are outside the pale of decency and honor. It is equally impossible to believe that vileness clings to one in five adults with syphilis while the remaining four with Wassermann negative passports, enter the gates of social respectability. Distinctions based on social status and class are irrational and unfounded to one who meets the situation day in and day out. For one thing they have a reflex effect that interferes with the medical diagnosis of the disease. How many carefully performed and accurate positive Wassermann tests does it take to establish the presence of syphilis? Far from being a purely medical question as the

syphilologist would insist, the public and even physicians, too often believe it is a social one. One positive test will usually convict a laborer over his own denial, two may indict a railroad president or a banker, but I have known three to be insufficient to satisfy a clinician of the "guilt" of a minister. To one who knows even the preliminaries of his subject, such situations would be laughable were it not for the tragic blindness they imply. This illustration, harsh though it is, exemplifies the ever-present fallacy in all public thought about syphilis and gonorrhea—the uncritical injection of moral issues and class distinctions into the problem. To the critical judgment, syphilis and gonorrhea have of course their moral phase, precisely as they have an economic or an ethical or a social or a medical phase; but the effort to mix the standards of moral judgment with the medical issues of detection and treatment of the two diseases persistently befuddles thought and blocks the waiting forces of progress.

Confusion with the Problem of Prostitution.—The second fallacy is the confusing of the problem of the genital infections with that of commercialized vice. To this, the false and misleading label "social evil" and its twin sister "social diseases" have contributed liberally. The situation is essentially that of mistaking the part for the whole. No one would seek to deny that commercialized vice is a large factor in the distribution of syphilis and gonorrhea. Medically speaking it can be thought of as the intermediate host or carrier of the Spirochaeta pallida, just as the mosquito is host for the malarial parasite. No rational public action against malaria neglects the destruction of the mosquito and the swamps in which it breeds. Yet is that any reason why we should ignore mosquito netting to prevent its access to the body, or quinine to destroy the germ when once it enters the blood? Point for point, the rational outlook on syphilis should match that on malaria. Because we have indeed found it unexpectedly difficult and perhaps impossible totally to destroy the prostitution host, is that an intelligent argument against the use of preventatives upon those who have been exposed to danger of acquiring syphilis and gonorrhea, or of curatives on those who have become infected? No clear-thinking man or woman who is familiar with the problem expects the immediate extinction of all mosquitoes or all prostitutes. Yet no clear thinker expects this difficulty to block all advance, and no forward-looking mind is willing to see the day of racial health and soundness of mind and body delayed indefinitely by it. Military strategy under Marshal Foch has taught us that many blows and many points of attack make victory. It is German obtuseness in a public health campaign against syphilis and gonorrhea to push away in shortsighted dog-

gedness at the obstacles in the fields of prostitution, to the exclusion of all other forms of effort. An offensive which covers the other strategic points as well, carries a much larger prospect of success.

Exaggerated Notions About Contagiousness.—Exaggerated notions about the contagiousness of syphilis and gonorrhea have performed to some extent for these diseases though to a less degree, the disservice that they have for leprosy. In leprosy the issue has been less productive of tragedies because of the comparative rarity of the disease. In syphilis because the disease is so much more common, false notions have worked deep and embittering injustice. Some of the situations have, however, the merciful quality of being ludicrous. The development of hospital services for the treatment of the disease is replete with anecdotes that there is no space to repeat. I have known eminent medical gentlemen to wash their hands with almost hysterical eagerness after touching my door knob, or after the presentation of one of my cases in a clinic; and nurses and office assistants joining my staff to be the recipients of condolences from friends and tearful protests from relatives; the supposedly well-informed heads of training schools to refuse me nurses when, without their realizing it, I had identified for them repeatedly the dangerously contagious syphilis which they were unconsciously nursing in their wards and in their finest private rooms. Of the uninformed we, of course, expect such blunders. That similar types of thinking are still prevalent among the flower of the profession is only a tribute to the super-darkness that surrounds us. We who are laborers in this field, look forward to the day when toilet and bath, door knob, effluvium and invisible contagion will retreat from the foreground of the public thought and give place to rational comprehension of the bacteriology, the hygiene and the epidemiology of syphilis and gonorrhea.

The Fallacy of Believing Fear a Deterrent.—With the fourth element in public misconception we enter a field for thought. The belief is exceedingly common that the fear of acquiring syphilis or gonorrhea, if widely enough spread, will deter those who would otherwise seek unsocial sexual gratification. No unequivocal answer to the argument can be offered. On one side of the question, however, it can be given as the experience of many workers in this field, myself among the number, that the popular impression is a delusion. As a student of this question for a number of years, and at times a speaker upon it, I have been unable to convince myself that fear stands effectively between a man and the gratification of his sexual desire. Of the many fairly well-informed sexual offenders that have passed through my hands, I can scarcely recall one who did not believe himself skillful enough to evade trouble, or the

possessor of some talismanic key to a situation or who did not go ahead, risk or no risk, in response to imperious desire. It is not cynicism to rate the efficacy of horror so low. Horror is cheap, and makes a feeble and unworthy substitute for ideals. A reasonably brisk talker with colored lantern slides can pile horror on horror until it bulges from the windows and through the doors, and the pause between impressive sentence and impressive sentence is punctuated by the collapse of the weaker members of the crowd. During the next few months after such a presentation the observer behind the lines meets distracted members of the audience in the consulting room and wrestles with them to undo the damage inflicted by a mode of approach that did not prevent subsequent infection, but simply superimposed upon it, nervous prostration. Knowledge of disastrous consequences, and fear of syphilis particularly, is now an old story to quite a number of young men. Medical students, who know all about it, have no monopoly of virtue. Syphilis and gonorrhea have long officiated in the role of morals policemen. They have never shown evidence of enough efficiency in the form of a reduction of the rate of exposure to justify their tremendous cost to the world.

A Positive Idealism Necessary.—Bishop Lawrence in one of his addresses[1] touched the vital point in fear as a deterrent. In a day when the Christian church is at last learning the virtues of a positive idealism and has ceased to preach hell as a means toward heaven, it is a tawdry morality that would found the new moral responsibility in sexual life upon fear. It is a degrading and unworthy monogamy whose slogan is only prudence, and whose bulwark of defense consists of the pitifully broken and twisted human wreckage, the shorn innocence, the dismembered helplessness piled up by syphilis and gonorrhea in the masquerade of spiritual defense. On honor and social responsibility and not on enlightened cowardice will be squarely placed the burden of the sex ethics of the future.

"I Thank Thee That I Am Not as Other Men Are."—A certain pharisaical self-righteousness underlies too much of our public thought about syphilis and gonorrhea. "Diseases of vice," "the underworld," "such patients," "that kind of work," represent types of thought that are tinged with it. Like the "erring brother" type of missionary spirit, it defeats itself. Nothing was ever gained by undiscriminating "sob stuff" of the "fallen woman" order. It has been my personal duty, and often my privilege to know the intimacies of the lives of many types of victims of the genital infections, and I have yet to meet a "fallen woman." Some of them are mentally abnormal, some of them tough, the women tougher than

[1] Social Hygiene, 1918, iv, 317.

the men sometimes, but at bottom a curious streak of the square deal still persists. Through all their wobblings and gropings, their weakness and blindness, their egregious vanity and towering egotism, their unsocial minds and spineless irresponsibilities, there still moves something which makes them human. With many of them their condition is a sickness, not a vice. They cling to friendship pathetically, honor can move them, and love may lead them when honor fails. There is no man or woman of grace and distinction who need feel that an acknowledgment of brotherhood with these will precipitate one from the heights. It is not necessary in the exercise of a larger charity to swing to the extreme of maudlin sentimentality. After all, thinking men and women can ask themselves the really fundamental question about their attitude toward syphilis and gonorrhea: "Do I think myself holier than thou?" Christ laid the simple foundations of a noble ethic in His word to the woman taken in adultery, "Neither do I condemn thee—go, and sin no more."

Syphilis and Gonorrhea as "Frightfulness."—And in the final group of obstructionists we number that fellowship of the apostles of frightfulness who believe that syphilis and gonorrhea are punishments for sin. To these, the "Gott-strafers," we owe a truly fiendish conception of the two diseases, that of disgrace and stigma. The mother on her deathbed, dying of gonorrheal puerperal sepsis while two nurses and a doctor fight for the baby's eyes, is disgraced. The boy with a chancre who came in to offer himself as a subject for experiment, if it cost him his life—he had been filled up with liquor by companions, and infected—he is disgraced. There is the mother, half her children in the grave, a third of the rest in hospital and asylum, taking in washings to hold the family together and to fill the place of the husband who died. Her twisting face, and shaking chin, and catching throat beg you to tell her she has a fatal cancer rather than "the bad disease"—yes, she is disgraced, too. And there is the girl who trusted him, and, too, the boy who trusted her, and the man who in an hour of loneliness met folly once—the "Gott-strafers" lump them all in Limbo with the stage-door Johnny and the hotel tout, the cop who takes his pay in trade, the pimp and the professional seducer. Leaving the humanity of it out of the question and speaking medically the crushing effect of the sense of disgrace breaks many a patient whom the disease would scarcely touch. And it is not the patient who deserves it, that meets this fate. The hardened, the vicious, laugh it off as part of the hazard of the game. It is the innocent, the sensitive, the timid, the shrinking, the child-like who are crushed. Analysis again comes to our rescue. Syphilis and gonorrhea have all the characteristics of the famous German

frightfulness. They make no pretense of discrimination between innocent and guilty. They are non-educative and non-reformatory. They murder non-combatants. They inflict barbarities which for refined atrociousness can put the best efforts of kultur into the background. They are indeed worthy of the "Gott-strafe" mind, which adopts them as punishments for sin.

CHAPTER II.

NORMAL IDEALS OF THE SEX LIFE. ABNORMAL CHECKS ON MARRIAGE. THE TREND OF THE TIMES TO LAXITY. THE INFLUENCE OF THE WAR.

The Normality of Sex Ideals.—The day of calmer thinking, less prurience, fetichism and taboo, will see a reconstruction of our conceptions of the sexual life. The instinct to reproduce has as great a normality, as high a title to consideration and intelligent adjustment as does the passion for enough to eat, which is simply an expression of the metabolic needs of the protoplasm of which we are made. The tendency to strain at sexual gnats and swallow commercial, ethical and political camels is as common as it is alternately laughable and tragic. Fundamental principles of equity, justice, mercy and unselfishness underlie this part of our lives as truly as they do the dealings in our courts of law, our business organizations, our hospitals, our social settlements. The future is in the hands of those who can read into the heretofore distorted and primitive narrowness, the prurient self-consciousness of society about sex, a broader and more generous interpretation. It is equally in the hands of those who can balance a liberal tendency with farsighted idealism, who can temper generosity with fairness and freedom with responsibility.

The Changing Trend of Sex Ideals.—The student of the sexual life in its relation to problems of public health cannot escape a sense of impending great revisions. Murmurings and intimations float about, social investigations from time to time give definite shape to impressions. No one would be so rash as to predict the cataclysmic, but it is hard to avoid the belief that reconstruction is on us whether we will or not. Moral codes that are ultrabiologic will plunge us into muck. On the other hand, moral codes that consist of a thin, attenuated and bloodless idealism which would convert the sexual relation from a love expression into a stock-breeder's device for the fertilization of the human female, have an even smaller chance of shaping our future. It must be a primary aim of any movement, public health, ethical, or whatnot, if it deals with sex, to combine ideals and practicality into a standard of conduct which best expresses the fundamental and all-inclusive principles of love, honor, and responsibility.

Growing Need for a Bulwark of Moral Ideals.—The need for considering the future of sex ethics carries with it the demand for a frank analysis of our present situation. The prevention of syphilis and gonorrhea will have direct effect in throwing human sexual life back upon its ethical essentials. If disease were to be removed from

the field of "accidents" and what little preventative influence it possesses were to cease to be, then moral standards would take their true places, as the only real character-forming bulwark between the social order and unrestrained gratification of sex impulses. But in the last analysis, the hold of such moral standards upon the race will be proportional, not to the depth of the social frown which punishes their violation, but to their inherent nobility, reasonableness and justice. It is at least good policy to believe that a self-enforcing sexual moral code will rest primarily upon such a foundation. Only by so doing can it hope to appeal to a sufficiently large body of humanity to make social disapproval of unsocial behavior, effective. The first necessity for the development of such a code is a consciousness of the weaknesses of the existing system.

Remediable Obstacles and Factors of Error in Marriage.—Marriage, the accepted convention for the gratification of the human sexual impulse and its utilization as an inspirational force, has not yet reached its ultimate perfection. It is urged as an outlet for the sexual ardor of young men and young women. Under existing conditions it has too high a margin of error for a scientific method, too large a factor of wastage for an efficient piece of economic machinery. It is, of course, no reproach upon an ideal such as we cherish for marriage to say that it is high. Any reproach comes in allowing its institutional expression to be so beset with obstacles and factors of error that it becomes unattainable, or a punishment and a discipline rather than a compensation, an outlet, and a worthy expression of human nature. In the same way, continence, as a sex ideal for the unmarried, is invaluable in preparation for normal marriage. Yet there are those who seem to feel that as a means of keeping worth-while men and women unfulfilled and childless because of the impossible demands of an oppressive social order, it deserves even less attention than it gets. Between these two extremes there lies a middle course, dictated by a combination of idealism and common sense. The idealism is summed up in the words love, honor, responsibility. No institution or code which adequately translates all three into practice need be distrusted. Common sense consists in the recognition of the fact that a social order which offers neither training nor inducement for its authorized sexual practice; which makes it economically prohibitive and unattainable in one way or another for a liberal percentage of common humanity and makes it acutely painful and punitive for another portion, must revise its methods or meet disaster.

Training in the Ideals and Practicalities of Marriage.—It is worth while to be briefly enumerative of certain aspects of the problem of increasing the practicality of the conventional sexual life, in

order to inspire those who have the opportunity to think and speak to thought and speech. In the first place, only in indirect ways are the idealism of marriage and the ways of making those ideals practical, taught to children. If marriage is to constitute the whole outlet for an instinct as fundamental as the securing of food, it should be taught with the same assiduity and even greater skill and foresight than goes into the learning of a life-work. Not only should girls learn its economics, but they should learn its theory, its ethics, its arts. Boys should learn side by side with the business training of the paper route, and the physical training of the gymnasium, the disciplinary give and take, the chivalrous gentleness that fits them to be fathers and husbands.

Marriage and Industrial Dependence.—As long as marriage spells economic slavery, it will be an unworthy expression of human ideals. If it cannot be made to appeal to the healthy-minded woman of the future on other than economic grounds it lacks something. If the woman feels that marriage is a descent into domestic drugery from an elevation of industrial independence she will not be long in finding a way to combine the independence of industry with marriage minus drudgery. What such a combined institution might be, it is impossible to predict. In many talks with different types of women the author has received impressions of the future varying from a liaison for sexual pleasure to virtually sexless business partnerships, and platonic friendships. These, of course, represent extremes. There is no question, however, that the "meal-ticket" hold of feminine economic dependence in marriage is slipping, and with it will go a force for which an adequate substitute in idealism will have to be found. Where it is lacking, an ill-judged union will end in speedy separation, and the creation of two sexual appetites to be satisfied instead of one, since sexual experience when once had, tends to break down the bonds of self-restraint. Stringent divorce laws will have less than their present trifling effect in controlling the situation, since the refusal of divorce where both sides are independent merely serves as a means of inciting to clandestinism and concubinage.

The Effect of Failure on Marriage Ideals.—The unsuccessful marriage *per se* has probably no more effect under existing conditions in deterring others from marrying than has fear in preventing sexual indulgence. Again each pair believes itself possessed of a talismanic key to the situation. Yet in the end, the high percentage of blighted unions has an unfavorable effect upon the conventional form of sexual expression. One sees what appears to be an increasing tendency to "try it out," which must be considered and aligned with the future of the sexual life. My own impressions

have, for instance, repeatedly confirmed the observations of Woods and Kennedy[1] among working girls and men, upon the growing popularity of an unofficial form of sexual union, a liaison which may or may not end in marriage, according to the inclination of the parties or the incidence of a complication such as pregnancy. The vogue and the rationale of such a trial marriage should be the object of careful social study, with a view to ascertaining its idealistic basis, which is often higher than rigorous convention admits, and to diverting it into social channels. As a distinguished landscape architect once remarked to a college group apropos of the laying out of paths between buildings on a campus "we watch the movements of the students across the grounds and allow them to influence to some extent the lines along which we lay cement." A similar attitude always properly guarded, has its place in determining the institutional future of human sexual life.

Marriage and the Economic Treadmill.—Economic obstacles are a grave menace to the future of marriage as the solution of the problem of human sexual relations. The almost cynical indifference of the state to one of the most vital of human functions and one which more than any other involves its own perpetuation is one of the social anomalies of our times. Apart from using the portal of entry into marriage as a fee collecting mill, and barring the exit from many a spiritual catastrophe, the state gives the relation minimal attention. Marriage in these days depends too much on being able to meet the extortionate cost of living for two and the children, and too little on physical or spiritual fitness for the perpetuation of the race. In some way an equitable basis must be found for making the raising of a family an industry, with adequate rewards proportionate to its success. The special worker with the genital infections has more than enough opportunity to appreciate the force of the answer he gets from likely young men in response to his question "Why don't you marry?" A statement of earning capacity and the response "Would you ask a girl to marry you on that much, in these days?" is only too often answered by a reluctant "No." Early marriage of all things is the most completely out of harmony with the existing economic order, while it seems the only available solution within existing conventions, of the problem of sexual life. When a man's sexual ardor and value are greatest, he should marry; but to do so, too often chains himself and the girl to the treadmill of economic bondage. The advice has so little of practicality in it under present conditions that those who undertake to follow it today are regarded as painfully and even questionably romantic. They

[1] Woods, R., and Kennedy, A.: Young working girls. Evidence of 2000 social workers. Boston, Houghton, 1913. Price $1.00.

are certainly not *de rigeur*, and have a place as objects of commiseration. Until the father believes the son's and daughter's successful and reasonably early marriage to be fully as significant as a college commencement, and is willing to provide for it; until the state subsidizes healthy motherhood and childhood substantially, without waiting for parentage to be crowned with widowhood; until we realize that to talk marriage as a sexual solution and then postpone it, is to deal in farce, the problem of an adequate sexual life as a protection against unsocial gratifications remains unsolved.

The Tendency of Sex Life to Crudity of Expression.—It is the fashion in these days to rend, not lift the veil. By this phrase I mean to put a hopeful construction on the modern habit, not yet at its climax, of making sexual issues the currency of everyday thought and speech. We have seen the period of irrational silence and restraint. We are moving, it seems to me, with equal certainty upon the period of over-expression. The tendency to think, to talk, to read sex problems on every side creates an impression that everybody acts them, that there is a trend of the times to license. While some of the trouble is mere noise and some is simply uncouthness, there is a noticeable abandonment of the dignity which should mark a new idealism and guard its translation into practice. Of course, we want no more whispers, no more lies, false names, wriggling and squeamish prudishness. But force is not incompatible with dignity, and frankness with a discriminating choice of words. More than one ardent spirit has been chastened by the appreciation that he might have spread the new knowledge better if he had done it less crudely. That the truth needs lucidity rather than expletives is a maxim that the ablest thinker on sex questions can afford to recall.

The Trend toward Sexual Laxity; Decadence of Chaperonage.—To my mind, much of the real trend of the times to sexual laxity as distinguished from mere noise, lies in the decadence of home influence as illustrated, let us say, by the decline of chaperonage. We forget so easily, as I shall take occasion to say again, that knowledge *per se* is little protection unless reinforced by judgment. The home must in childhood and adolescence, supply judgment. No one can read and see verified in daily life such a series of thumbnail sketches as Kauffman's "Girl That Goes Wrong"[1], without realizing that there is no substitute for the guardianship of experience over the rashness, the impulse and the unsophistication of youth. Such guardianship, without being tyrannical, must extend to many little things, which the relaxations of our day regard as trivial. In conversation with a noted prostitute, herself a woman

[1] Kauffman, R. W.: The girl that goes wrong. New York, Moffat, Yard, 1911.

of more than average cultivation and insight, she rated the young girl's habit of dining out unchaperoned with men as one of the most potent contributing factors to illicit sexual experience. In the same class go the unsupervised automobile jaunt, and the activities of the taxicab, which are writing a new chapter into the sexual history of the day. There is little time for mention of more than principles, though each observer can discover a new illustration for himself. The same point stands out through all of them. The decadence of adult oversight for boys and girls alike, is throwing back upon the most ardent, least sophisticated, least experienced and therefore least competent period of life, sex decisions of more than vital moment to the race.

Contributions Made by the War to Sex Problems.—Upon problems of sexual conduct the war has already shown evidence of four important influences. The first of these is the full-fledged entry of women upon the stage of industry and economic independence. As I have already intimated, profound modification of the relation of husband and wife may result from it. The second influence may come through the general spread of knowledge on medical means of preventing syphilis and gonorrhea. Millions of men, literally, have been educated to it by army methods, and broadcast public teaching on the subject has been carried out in Italy and Germany at least. Whether or not there shall be a medical prevention of the genital infections has ceased to be a matter for discussion. It is here, and the next problem is its proper utilization and control. The knowledge is good, but again, its application needs judgment and must be begun before the flood of it engulfs us. The third influence comes through the tremendous contributions of the war to the idealistic solution of sex problems. The questions of the efficiency of intelligent sex education, of the repression of vice, of the ability to keep up sexual morale by indirect influences such as recreation and the increasing of the livableness of life, are settled past all dispute. The fourth influence is being exerted through the awakening of the world from lethargic indifference to a sense of public duty in connection with sexual issues. The spectacle of governments bending their energies to the solution of the problem of syphilis and gonorrhea would astonish our great grandfathers no less than would the electric motor, the locomotive and the wireless telegraph.

CHAPTER III.

THE ECONOMIC BACKGROUND OF SYPHILIS AND GONORRHEA. PROSTITUTION. ALCOHOLISM AND THE GENITAL INFECTIONS. OTHER FORMS OF COMMERCIAL EXPLOITATION.

The Dollars and Cents Aspect.—In the earlier days of the campaign against tuberculosis, some very ingenious methods were resorted to in order to impress the public with the fabulous losses in actual dollars and cents, occasioned by this disease. No comprehensive figures are at present available for syphilis and gonorrhea. Most of the evidence bearing upon the economic cost of syphilis is buried among the statistics of insane hospitals and pauper institutions. Only occasional glimpses can be had, which indicate the enormous wastage which they cause. Williams estimated, it will be recalled, that ten men insane from syphilis, represented a net loss based on life expectancy of $212,248 in earning capacity, and a cost to the State of Massachusetts of $39,312. According to the census of 1910 there were 180,000 insane persons in the United States. Estimating 12 per cent of insanity to be due to syphilis and the experience of Massachusetts to be applicable to the country as a whole, the economic loss in earning capacity and cost of care on the score of a single item in the total bill of only one of the genital infections, would approximate $467,000,000. If insanity, a relatively uncommon complication of syphilis, can alone cost more than a half billion dollars, the cost of illness and death from other and equally grave complications, such as heart and kidney disease, blindness, deafness, paralysis due to nervous change, when added together, will total figures that take rank beside the stupendous costs of war. These are estimates of the cost of consequences. The wastage of money spent on ineffective treatment, on the maintenance of hospitals and dispensaries, on medical fees, and through reduction of efficiency without absolute crippling and death, is beyond the reach of comprehension.

Current legislative appropriations which provide for little more than scratching the surface of the problem of prevention, vary from $60,000 to $100,000 in certain states, to the $2,700,000 provided for one year's work on the part of the national government. In 1914 it was estimated that $400,000 would merely provide salvarsan for the British, without any consideration of the cost of giving it. The United States Navy on a single invoice of salvarsan paid a bill of $17,000. Sums such as these could in the aggregate within a generation make an appreciable showing on the part of one disease, even as against the colossal figures of war finance.

Cost of Treatment as an Element in the Campaign.—The cost of the treatment of syphilis or gonorrhea is a practical issue of the first magnitude in a public health campaign. Modern treatment of either of these diseases calls for prolonged medical attention, and in the case of syphilis especially, for expensive drugs and tests. The expert, who is best fitted to cope with them, is an expensive man, who has had one of the long and costly trainings so characteristic of medicine of today. Few patients of moderate means are adequately treated for a secondary syphilitic infection for less than $500. With complications in either gonorrhea or syphilis the cost rises rapidly and with the increasing incapacity which many of them involve, the ability of the patient to pay for good service rapidly declines. Again, the large majority of infections are acquired early in life, before the victim has reached an earning capacity which will enable him to cope with the situation. The result is that he neglects it, and loses the opportunity for cure for which in later years, as successful merchant, banker, public official, he would give all he has. So significant is the cost factor in the public health problem of syphilis and gonorrhea, that it is now universally recognized as wise policy for the state to provide free treatment for every patient who cannot meet the expense. The provision of such treatment should include the services of adequately trained men. The sooner the state commits itself to a policy of expert service in the genital infection field, the sooner will results appear. It is scarcely to be imagined that highly special knowledge of this subject will be found behind every doctor's name plate. It is also a gross injustice to expect men who have met the expense of a training fully as prolonged and costly as that of the traction and lighting experts and legal counsel for which a city pays so lavishly, to serve with inadequate compensation in hospitals and dispensaries. Such a system in connection with medical schools and public medical facilities leads to worthless service and to forms of graft no less obnoxious than those of politics. Until medical schools and hospitals are prepared to place the care of syphilis and gonorrhea in the hands of properly qualified and paid experts, who receive appropriate recognition, for their ability as teachers and physicians, a most important field of progress against these diseases will remain closed.

Commercialization of the Sex Impulse.—A powerful, constantly exerted force in human affairs will inevitably be subjected to commercial exploitation, precisely like a source of physical energy such as water power. Powerful influence will be brought to bear to meet an existing demand, and to create new demand. Simple economic laws like these govern the relation of prostitution to the sex life.

The relation has no secrets and few mysteries. Take the money out of it and from behind it, and it loses a large part of its hold on the world. Similarly the relation of alcoholism to prostitution and through it, to syphilis and gonorrhea, is a phase of commercial exploitation of the sex impulse, the simple selling of a means to promote hilarity and take off the moral brakes. These two factors in the public health problem of syphilis and gonorrhea are so important that their fundamentals must be considered here.

Syphilis and Gonorrhea in Prostitutes.—Sexual relations between men and women of easy virtue constitute the ultimate source of the overwhelming proportion of infections with syphilis and gonorrhea. There is on the whole little evidence to show that clandestine differs markedly from public prostitution in its ability to infect the patron. In fact the throwing of false security such as that of medical examination and registration about the better organized public types, serves to make them more rather than less dangerous[1]. Repeated careful surveys of the situation have brought out with striking definiteness, the percentage of infection which exists among prostitutes[2]. Gonorrhea is present in approximately 75 to 90 per cent and syphilis in 60 to 80 per cent of those to whom promiscuous sexual exposure is habitual. Papee showed that 30 per cent of the prostitutes in a typical city (Lemberg) were in the first to third year of a syphilitic infection—that is in its most contagious period. Through every investigation there stands out the fact that three-fourths of the dangerous cases are sexually in the most attractive period of their lives—under twenty-five years of age[3]. The number of men who may be subjected to risk of infection by a single woman seems incredible. Conservative German estimates during the war placed the activities of a prostitute at forty exposures per day, and Exner cites a case on the Mexican border where a woman with active syphilitic lesions subjected 120 men to exposure in two days. With syphilis and gonorrhea so overwhelmingly prevalent it is difficult to understand why every exposure with a prostitute, public or private, does not result in infection. The explanation involves a combination of chance, presence or absence of contagious lesions, the stage of the prostitute's infection, and the presence or absence of favoring conditions in the partner such as abrasions, uncleanliness, etc.

The Medical Examination of Prostitutes.—The general description of the medical aspects of syphilis and gonorrhea makes it apparent why the prevention of infection in prostitution by such

[1] Jolivet found in a recent survey that 52 per cent of 100 soldiers had been infected by registered, 48 per cent by clandestine prostitutes.

[2] Baltimore Vice Commission. Survey, March 25, 1916, 749.

[3] Philadelphia Municipal Court Reports, for 1916, for example (p. 260) show that 150 of 214 girls entered prostitution between the ages of twenty and twenty-four.

measures as the medical examination of women has proved a failure under the conditions of ordinary life. A woman may be a passive carrier of infection from a previous partner without herself showing evidence of the disease. Examination of men is therefore as much in order as that of women. The entire intent and purpose of a medical examination for gonorrhea can be easily evaded in the majority of instances by a clever prostitute. The examination for both diseases to be even partially effective calls for laboratory equipment and special skill not usually available, and for time, which officials making such examinations do not have. The result of a negative examination on one day may be reversed on the next by the appearance of a flare-up or a contagious lesion of which the patient herself may be unaware. It is true that so far as the prevention of syphilis particularly is concerned, there are measures which have never been employed on prostitutes which may have greater value than those used heretofore. The question arises, however, whether such measures can ever be brought to a pitch of efficiency which will make them even medically speaking as effective as a vigorous policy of suppressing and crushing out all prostitution wherever it can be reached.

Syphilis in the Lax and Indiscrete.—Syphilis in particular does not wait for sexual intercourse in order to attack the lax and careless. Those who permit liberties to be taken with their persons in the form of kissing and caresses which do not go to the point of actual sexual relations, are subject to a risk of infection which is larger than is generally realized. This risk is doubled by the mistaken belief of both parties that by indulging in mild offenses they escape the dangers of an outright breach of decency.

Unsocial Sexual Relations Cannot Be Made Safe.—On the whole it is a conservative judgment that no device exists by which unsocial sexual relations can be made safe from the standpoint of genital infection. It is difficult to believe that the attainment even of maximum efficiency in their public health control will totally do away with syphilis and gonorrhea. They will remain the heritage of lust. It is axiomatic that the quintessence of caution, the most highly specialized instinct of the "knowing one" for the "safe chance" sooner or later goes astray. Where infection has been most carefully ruled out, or is least suspected, there it occurs.

The Struggle Against Prostitution; Regulation, Repression, Legal Measures.—It is, of course, impossible in a study of this kind to discuss at length the methods of attack upon prostitution as the carrier of syphilis and gonorrhea. The older conception that the situation was hopeless has no foundation in fact. The control of the more intangible and clandestine types of unsocial sexual relations

is a problem in morals, psychology and economics. The control of commercialized vice which is probably the larger factor of the two is a matter of public administration and the systematic and determined employment of repressive force. Regulation of prostitution, in effect an attempt to herd it together and control it by systems of inspection and registration is of long standing on the Continent, and during the war was a part of the accepted policy of certain of the belligerents. The plan has innumerable weaknesses, apart from its contemptibility as an expedient. Policies of toleration and regulation are giving way before repression or abolition, which consists in the systematic stamping out of vice wherever it can be found. To the United States belongs the distinction of demonstrating in connection with the military and naval policy of this war, that repression is not only the only respectable, but by all odds the most highly efficient policy which a community or a nation can adopt. The most effective implements in civil life against commercialized vice are those which separate the commercial and the vice by attacking the former. As soon as organized prostitution ceases to be a paying proposition, it begins to dwindle in influence and extent. The removal of the pernicious influence of the liquor traffic which reaps enormous profits from organized prostitution, has had remarkable effect. A very ingenious and effective legal instrument exists for making commercialized prostitution unprofitable. This is known as the injunction and abatement law, and its mode of action consists in tying up property both real and personal, which can be shown to be used for immoral purposes. It is so effective that one vigorous application will put an entire red light district out of business, and the law can then be employed in ferreting out and crushing the sporadic and scattered activities which follow it.

State Care of Delinquent Girls.—A measure directed against prostitution whose importance has repeatedly impressed me, is the proper provision by the state for the care of mentally or morally deficient girls, who through weakness and lack of moral sense and backbone rather than viciousness are led into prostitute careers. Many such patients are encountered in the course of medical consultation work, and the problem as to what to do with them has had deplorably little attention. Industrial schools do them no good, since the difficulty is inherent and cannot always be trained away. They are not insane or imbecile, and hence cannot be committed to the average asylum. The influence of everyone interested in the movement against genital infections should be enlisted in trying to secure farm colonies for these types, where they can be under custodial care for life.

The Fundamental Principle.—One principle stands out sharply from all the rest. Regardless of whether the relations between the sexes have reached or will ever reach a final adjustment, it can be unqualifiedly said that commercialized prostitution is wrong and must go. Every self-respecting man or woman can without a moment's hesitation cast his influence on the side of repression.

Alcoholism and the Acquiring of Syphilis and Gonorrhea.—Alcohol has two important influences on the spread of syphilis and gonorrhea. It puts people in a state of mind to get infected, and it decreases their resistance and systematically injures them once they are infected. Estimates of the proportion of men infected while under the influence of liquor vary from 30 to 80 per cent (Riggs). The physiological action of the drug, even when taken short of intoxication is to take off the brakes, remove the inhibitions, so that acts which an individual could not perform in a normal state without losing his self-respect, become matters of course under alcohol. Befuddlement and confusion further add to the effect by making the individual not only rash but undiscriminating, so that he will assume risks which he would have avoided if he had been in possession of his faculties. A drunken man not only can be betrayed into any sort of situation, but is powerless to take any measures to prevent infection until too late. That no amount of cultural tradition avails against a few drinks is abundantly evidenced by the downfall of many a splendid college man. The influence of alcohol upon girls and women is no less dangerous. The wine-list on the back of a cafe menu is responsible for the tragic ending of many a seemingly innocent supper. If alcohol could be absolutely excluded from every point of social contact between men and women, there would be an immediate drop in the incidence of syphilis and gonorrhea. The influence of alcohol in promoting sexual indiscretion has been exploited without scruple by the liquor interests of the world, and furnishes alone an adequate reason for their extinction. Kneeland's astonishing presentation of the relation between commercial alcohol and commercial vice is classical and should be read by every adult.[1]

Physiologic Effects on Persons Already Infected.—The physiologic effect of alcohol upon the gonorrheic has been mentioned. It makes infection easier, and it promotes relapse in the acute stage. Upon the syphilitic the influence of the drug seems to be mainly upon the nervous system. The combination of alcohol and syphilis tends sharply toward locomotor ataxia and general paresis, and toward

[1] Kneeland, George J.: Commercialized Prostitution and the Liquor Traffic. Social Hygiene, 1916, ii, 69-90.
Clark, Walter (Field Secretary of the American Social Hygiene Association): Prostitution and Alcohol. Social Hygiene, 1917, iii, 75-90.

serious involvement of the kidneys, the blood vessels and the liver. A syphilitic who drinks is predisposed to danger from treatment as well as disease, and on the whole deserves little consideration unless he stops.

Other Phases of Commercial Exploitation of Sex; the Stage, Books, Clothes, Etc.—Commercialization of the sex impulse extends to other fields than those of alcoholism and prostitution. The filthy picture industry and other grossly indecent activities still thrive. Less flagrantly but still regrettably, the moving picture theater, the legitimate stage, books, and clothes, all reflect the eagerness to coin sex curiosity and sex desire into cash. While it is scarcely necessary to be Comstockian in repression of every aspect of the nude, there can be no escape from the fact that the vogue of "leg shows," suggestive gesture and dancing, risque plays and peek-a-boo garments is inspired by something more than a return to appreciation of the Grecian in art. It preceptibly raises the tempo of sex life, and cannot be dismissed as negligible by the student of sexual morale. While we need not become fanatics, it is unwise to ridicule unqualifiedly those who speak on the side of caution in these things. The trend is there, and best recognized for good or ill, rather than veiled under an assumed, because convenient, broadmindedness. If eroticism is to be the trend of the times, perhaps well and good. It may be that nature is thus asserting herself in the struggle against modern economic checks upon the sexual life. But profitable eroticism has no excuse for being.

We return then to the point at which we began. Every act and every industry which makes a dollar out of the stimulation of sex impulses deserves the closest scrutiny and the most persistent supervision from those intent on sexual idealism. It plays with fire.

CHAPTER IV.

MORAL AND EDUCATIONAL PROPHYLAXIS OF SYPHILIS AND GONORRHEA. PROBLEMS AND METHODS OF SEX EDUCATION.

Morale and the Sexual Life.—It has taken the war to demonstrate the extraordinary efficiency of morale in every phase of struggle. In the sexual life no less than on the field of battle, it is paramount. A high morale has an efficiency as a preventative of syphilis and gonorrhea in comparison with which even the triumphs of medical prophylaxis take second place. The conservation and the development of morale in the sexual life, therefore, becomes not a mere side-issue, but a first duty. Four fundamental factors contribute to a high standard of sexual morale. These are: a positive as distinguished from a merely negative or prohibitive idealism; numerous effective and clean outlets for the energy of the sex impulse and the ideals that it underlies; certain fundamental habit inhibitions; the teaching of the young child, not the adolescent or the adult, the character basis for a healthy sex life.

Positive Idealism and Idealistic Expression.—"Élan," that vivid French word to express the ardor and exultation of battle, is a product of the attack, rather than of defense. A man may stubbornly but without enthusiasm, defend himself from temptation. But give the force behind the temptation something positive to work for and it is transformed into inspiration. For example "Thou shalt not covet thy neighbor's wife," and "thou shalt not commit adultery," have force, to be sure, but they lack as principles the breadth and the effectiveness of the positive injunction which embraces all that either of them could mean "Thou shalt love thy neighbor as thyself." The sexual life of humanity needs inhibitions to be sure—but too often the negations have been substituted for the outlets and expressions, and dwarfing without ennoblement has been the result. To the effect of lifelong repression and inhibition of sex expressions and yearnings much of the barrenness of many a withered marriage has been due. It is an essentially evolutionary and stimulating view of the possibilities of the sexual life which teaches a self-control that expresses itself in noble action rather than in the negative virtue of frigid ultra-restraint. To teach sexual morale as a thing which can and should be an expression of one's best, not an inhibition of one's worst, is to teach it dynamically and synthetically, and to enlist in the cause all the upward tendency of the race.

Altruistic Outlets for Sexual Energy.—If a high sexual morale is to be a form of enlightened expression rather than suppression it

is necessary to plan altruistic outlets. One's lower centers in a state of physical health take care of our impulse to physical expression. What the vast body of men and women need to have insistently shown them, is the fact that there are indirect expressions of the sexual instinct which will enrich both themselves and the world. Few passionate but controlled souls escape the learning of this lesson. More could be taught it, if there were more teachers and the teaching were begun earlier. The woman who in default of marriage and children, mothers the family of another; the nurse whose care of the sick has all the tenderness of the love of woman for man and mother for child, are examples of it. The man who builds into the fabric of a great lifework the love of the woman he cannot have or never met, is a less familiar but no less needed type. Gospel of this sort seems sometimes far removed from the sordid details of this or that wreck we know of, and yet it is fundamental and vital, and analysis leads us to it again and again. The torrent of obscenity which belches from the mouth of a brickyard paddy has at least the latent energy of sewage. If as a child he had been taught a different mode of expression for that same force, he might have been a power for good as a man. Outlets, physical and spiritual, for the energy of the sexual life, are part of the essential mechanism for the preservation of its morale.

The Fundamental Inhibitions; Sound Character as a Basis of Self-Control.—An unqualifiedly positive and expressive philosophy in the sex life would be, of course, overbalanced. There must be fundamental inhibitions. The "Everlasting No" in the sexual life must be bred in the bone, not merely put on as a garment. It is moreover, a habit, not an enlightened rationalism. The man to whom the physical degradation of resort to a prostitute for sexual relief is impossible, is not the product of the logic of the situation, or its fears. He is physically incapable of an act that runs counter to the instincts of cleanliness bred in him with tooth-brush and soap, as well as the more spiritual forms of cleanliness expressed in the straight-forward eye and the ring of sincerity and honesty in the voice. The strongest safeguard against syphilis and gonorrhea which a man or woman can have is not knowledge of risks of infection or familiarity with means of avoiding them, but sound character. The type of personality that loves its neighbor as itself, that lives rather than talks the square deal, that is tender, chivalrous, loyal, and generous, possesses a margin of sexual safety for which there is no prophylactic substitute. Make a *man* first; teach him honor, make his word his bond, his first thought for the other fellow—then let him love, and there will be little cause for fear.

Teach the Child.—A foundation of the type I have described is laid at only one time in life—in childhood. If sexual morale depends on character, it is folly to try to paint it on the surface at puberty. Those who have tried their hand at reconstruction in adults likewise appreciate the futility of trying to mold the hardened clay of the sexual experience of later life. If we are to grasp the opportunity to create a sexual idealism we must teach it to the children. The opportunity often comes in my experience, by utilizing those who have suffered themselves, and will take the steps that save their children from a similar fate. The mother who has been infected, or who has had the opportunity to see at first hand the experience of another, makes an able ally. Projects for the reformation of the adult sexual offenders of our own generation require a superlative and in the end usually a futile evangelism. If we are to reconstruct, it must be through our children.

Home, Protection and the Work Outlet in Sex Education.—Sound sex education is a highly complex affair. It demands the intelligent employment of recreation, of discipline, of hard work, of responsibility, even of hardship, as means to an end. The scene *par excellence* for the play of these forces upon the child is home. No system of schooling, no formal method of training will ever be an adequate substitute for the right kind of a family life. To remedy a defect or find a cause in a sexual blunder, go back to the home and the family. The child who is insolent and disobedient, the boy who is unsportsmanlike, who has an allowance he does not earn, the willful, pert girl with skirts too short and hair too high, the youth with silk hose, and cigarette hanging from the lips, owner of an automobile when he should be mastering the wheelbarrow, are feeders of the mill of sexual catastrophe. Unsupervised companionships between boys and girls, idle evenings, personal familiarities and especially physical contacts between the sexes, seem outwardly harmless, but they are the starting points of trouble. It should not take a medical expert in syphilis and gonorrhea to appreciate that it is not a cold old-maidishness but simple common sense which throws protection around young girls, and keeps young fellows busy striving, studying and working instead of philandering. Protection and the work outlet should come into play early. Few men who can look back with frankness upon their boyhood and school days really believe that sexual activity begins with puberty, or that sexual stimulants such as dancing and tête-a-têtes, can be allowed full play untempered with judgment, if we are really to take our sex standards seriously.

Virginity is Only Half the Problem.—The object of a successful teaching of sexual morale is not merely to marry virgin women to

virgin men. Pre-marital continence in only one phase of the problem. Many a mother heaves a sigh of relief when she has her daughter safely married off, forgetting that there are wolves within as well as without the fold, though perhaps of a different stripe. The man or woman whose whole sexual training has been concentrated on virginity and suppression can be as hopeless an impossibility in a workable sexual career as a Light o' Love. To this side of the problem, by all odds the more difficult of the two, little thought has been devoted. Inhibitions may make the virgin, but it takes dynamic idealism, some power of expression, and physical fitness to make the successful father and mother, husband and wife. To this dynamic idealism all the variegated experiences of living—those gained in work, in recreation, in hardship, and in adversity, contribute the gifts which make achievement. It is our double duty to see that our children do not lack their share of these essential aids.

Value of Sex Instruction.—Education in the facts of the sexual life is to many the stone of stumbling in modern ideals for a higher sexual morale. Opinion on the correct technic of such teaching is in the making. The actual value of education in sex matters is, however, fairly well settled. For example, Riggs, at the Norfolk Naval Training Station, was able by purely educational methods, to reduce the percentage of sexual exposure in a large body of men, from 126.7 per cent to 38.6 per cent in a period of two and one-half years. Ninety per cent of 676 college men in a special survey estimated that they had been benefited by sex instruction received from wholesome sources. On the other hand, 79 per cent of 690 college men who had received their first information from other boys and girls and miscellaneous sources, estimated the effect to have been bad. As between the taught and the untaught the difference is so striking as to justify even the timid in making an effort to instruct those to whom they owe a duty.

Methods and Technic of Sex Instruction.—Impressions of the methods and technic of sex instruction may be briefly summarized as follows. The age at which children begin to acquire first impressions of sex is much less than is commonly supposed, and much earlier than the age of the official attempts to impart information. The estimated age of first sexual impressions in a large survey was 9.6 years, the age at which wholesome instruction was first received 15.5 years. The sex education of children as such must therefore be begun much earlier than puberty, as previously pointed out. If the parent frankly confronts the first questions asked by the child and answers them simply, truthfully and directly, without too much detail, the simplicity of the child and the entire absence of the self-

consciousness of puberty will make the situation easier to manage thereafter. The child should be repeatedly impressed with the fact that the source of information on such matters is the father and mother, not friends and companions, and that the subject is never to be discussed outside. Emphasis on the impersonal and larger aspects of sex is essential. Children respond well, in my experience, to explanations of honorable conduct toward each other. The physical side should be biologized at first by the use of plants and other animals, but to be effective it must always come back to human beings, although an excessive literalism is to be avoided. While corn and tiger lilies and other examples from real life are valuable, pictures of human anatomy are generally conceded to be undesirable because too suggestive. The choice of words is the most embarrassing problem to the untrained. It can be overcome to no small extent by reading some of the literature illustrating methods of approach, which is obtainable from accredited sources at the present time.[1] During the earlier years of a child's life it should be taught personal cleanliness, learn not to meddle with the genitalia, and acquire a profound respect for these parts, which little children learn well on repeated insistence. If children are found to have made a false start, it is the height of folly to resort to fear or threats. Both of them drive the child violently in upon himself, and in the case of masturbation especially, lead to mental states infinitely worse than the original trouble. In the earlier years is laid the whole foundation of the intimate friendliness between parent and child which will draw the two together and make the child approachable during the transitions and self-consciousness of puberty. The parent must play an active part and move toward the child, not wait for the latter to approach him. It is surprising how easily satisfied a child's curiosity is, and how often vicious information comes to him gratuitously, and not of his own seeking.

Companions and Books.—The companionships of a child must be closely watched, and this not by watching the companion alone, but by watching his parents, and estimating the type and degree of their influence. A boy whose father and mother let him grow up as a weed has a surprising capacity for imparting weedy characteristics to the better stock of the neighborhood. Older boys are a particular danger, and unsupervised walks and absences with older boys are often fully as dangerous to sexual integrity as later unchaperoned contact between the two sexes. A boy's first lessons in his relation to girls should take the form of chivalric regard for mother and

[1] A written request for booklets or teaching material, addressed to the United States Public Health Service, 228 First Street, N. W., Washington, D. C., with a statement of the age, sex and social status of the persons concerned, will receive a prompt response.

sister, and the cultivation of his protective instinct for them. To make it part and parcel of a boy's creed that he who harms a woman is a cad and a bum sport as well as a coward is to build up insurance for clean living. Books, too, have no small influence on adolescent sex ideals. A course of the sentimentalistic mush too easily available to unguided boys and girls has paved the way to many a premature emotional crisis and sexual disaster.

Good Sportsmanship and Hardy Living.—Woodsmanship, as among the Boy Scouts, vigorous exercise, forms of activity involving team play, teach fundamental ideals of sportsmanship and the square deal, and have a vital place. The leaders in these movements should be selected with the utmost care, on a basis of personal character and not on that of mere craftsmanship. The foulest mouth and the vilest personality I have ever met in a variegated experience was that of the much prized captain, athletic idol and all-American star of the football team of a great university. Athletics for its own sake breeds dangerous types of personality. The so-called amateur ideal of training to a pitch whose height only serves to emphasize the fall when training breaks, has no place in the kind of sportsmanship that develops sexual morale.

The Time for Plain Facts.—Syphilis and gonorrhea should not be mentioned to children. It is my personal belief that the essential facts of the carrying of sperm to egg cell in the human being, told in purely impersonal language and devoid of detail can be given to both boys and girls just before puberty. Information of this sort to be protective must not, however, be too vague. Girls for example, can be warned to make boys keep "hands off" and boys similarly, enjoined against caressing and handling girls. The pubescent boy or girl can then be told if the situation seems threatening, about the genital infections. Much depends on the individual. In general such knowledge comes best, I believe, between the fifteenth and the eighteenth year. While sexual experience occasionally occurs soon after the twelfth year, a sound foundation in character and elementary training will make any restraining influence that fear can lend unnecessary until maturity is well established. The importance of seeing that every girl at this time understands the physiology of menstruation and every boy understands the seminal emission and is put on his guard against quacks, cannot be overemphasized.

Visual, Graphic and Personal Teaching; the Speaker.—War experience has definitely demonstrated the superiority of visual, graphic and personal methods of teaching over books, leaflets and other forms of printed matter. None the less the latter must be resorted to and have an important place. Visual methods call

for discretion. Skilfully prepared exhibits of the poster type are effective[1] especially when accompanied by facilities for free private medical advice—a fact which quacks have long used as a drawing card. Bulk methods of verbal teaching of sexual facts to younger people are to be discountenanced. Very few speakers have shown themselves able to handle them. Munger, in the Navy, had opportunity to observe its undesirability and relative ineffectiveness. It is impossible to strike a tone that fits all ages or types even in a one-sex audience under eighteen years of age. It is vital in these matters that the speaker be *en rapport,* and a giggle is enough often to mar the situation. Amateurs should not practice upon audiences. Before older groups a forceful and well-informed speaker can dominate the situation. The presentation of sex material in lectures is an art in which many are called but few chosen. The most powerful and effective speakers I have heard have combined a commanding personality with the ability to express themselves in the vernacular. In other words, they have possessed the qualities of popular leadership. The fault of many lecturers is their tendency to talk from above down, to be too vague and to indulge in pendantry, bathos, or sesquipedalian verbiage. It is possible to give an unforgettable talk on sex ideals without direct reference to the Deity, or to vice and sin. There is that in clean living, good sportsmanship and the square deal for women, that instinctively appeals to red-blooded men, and its application to the sexual life is more often obscured than furthered by turgid rhetoric.

[1] Osborne, F. J.: A health exhibit for men. An educational exhibit on venereal disease control and prevention presented at Coney Island by the New York Social Hygiene Society, Social Hygiene, 1916-17, iii, 27-49.

CHAPTER V.

THE PUBLIC HEALTH CONTROL AND PERSONAL PROPHYLAXIS OF SYPHILIS AND GONORRHEA.

The Public Health Control of Syphilis and Gonorrhea.—Public health control of the genital infections is meant to include those elements which organized public health work contributes directly to the campaign against these diseases. As legitimate parts of public health activity we must rate the systematic suppression of temptation to indecency involved in the abolition of prostitution, and the extinction of the liquor traffic. No attempt to control syphilis and gonorrhea deserves serious consideration until it has a thoroughly organized and uncompromising policy with reference to these two factors. The gross stimulation of sexual impulses must go. This and other essentials of a public health campaign against syphilis and gonorrhea are admirably illustrated in the policy of the United States Government as outlined by Major Sawyer, and need not be duplicated here.

The Church and the Problem.—Attention has already been called to a point of contact between the church and the problem, which deserves re-emphasizing; that is, the influence of the former over the solemnization of marriage. Few obligations seem more obvious than that the institution which stands determinedly for the inviolability of this moral and social bond should feel a direct sense of obligation in determining the fitness of those who enter into it. The clergyman and the priest are exercising their highest function in company with the physician and the parent when they feel toward the marriages of their parishioners a sense of responsibility greater than that attached to any other duty which they may perform. If they feel that sense of responsibility, the marrying parson and the ecclesiastical marriage mill will cease to exist. A closer guardianship of the entrance into marriage will obviate the necessity for so much emphasis on divorce, inasmuch as the permanence of the bond is directly proportional not to penalties placed on its violation, but to the wisdom that presided when it was entered into.

The New Responsibilities of the Medical Profession.—The awakening with respect to syphilis and gonorrhea will place new responsibilities upon the medical profession, to which attention has been directed from time to time in this study.

The existing situation is not satisfactory. It is unsatisfactory, not because the physician does not feel the need for better things and does not seek them, but because better things have not been available. To know syphilis and gonorrhea one must be taught, and taught not by men to whom the subject is incidental drudgery, but

by enthusiasts. Such men have formed no part of the staff of the medical schools of the past. Even today the number of schools which are teaching syphilis and gonorrhea with the energy that their place in medicine and public health deserves, can be numbered on the fingers of one hand. An unfortunately large proportion of the medical profession are thus attempting to work with a modern situation using tools that compare in effectiveness with the stone hammers and knives of paleolithic man. Gonorrhea lags in the background not alone because of its inherent peculiarities as a disease, but because a combination of adverse circumstances has kept enthusiasm about it at a low ebb, and teachers and fighters correspondingly scarce and ill-trained.

Hospitals and the Problem.—Conspicuous examples of medical philistinism of the type that obstructs progress in this field can be found in the attitude taken toward syphilis and gonorrhea by hospitals. While syphilis is not a quarantinable disease throughout its whole course, a person with active contagious syphilis has no business at large in the community until he is temporarily sterilized by arsphenamine. A very brief stay in hospital provides the needed opportunity. Many of the complications of gonorrhea respond rapidly to bed treatment, with the avoidance of chronicity and prolonged contagiousness. Many other reasons exist why there should be regular provision in general hospitals for the care of patients with syphilis and gonorrhea. Estimates based on large experience call for one hospital bed for these diseases to each 2,000 population in order to provide for their modern treatment. The actual state of affairs in our large cities comes nearer one bed to 10,000 population. The explanation appears to lie simply in the medieval attitude of boards of trustees and hospital administrators toward the diseases, plus the belief that in the existing state of public sentiment their proper care is "not feasible." That it is eminently feasible, is demonstrated by the fact that probably the best-considered and yet most conservative modern program against syphilis and gonorrhea in the world, that of the Sydenham Commission in Great Britain, embodies it and is putting it into practice. In this country a mere half-dozen or so of hospitals and clinics have recognized the place of this work in the future of medicine and are operating complete hospital and dispensary services under the direction of experts. Two details it is important to remember. In the first place special venereal hospitals treating syphilis and gonorrhea alone are not effective in meeting the general problems, because patients, sharing the public prejudice, feel themselves disgraced by resorting to a place the mere attendance upon which constitutes a label. In the second place the need for hospital care for the victims

of the genital infections is not limited to the down-and-outs who are now the best provided for. It would be difficult to find a hospital of any size so discriminating in its patronage that it has no need for beds to treat syphilis and gonorrhea. There is no city of 25,000 or over whose hospital would not be performing a public service of the first magnitude by taking the lead in the development of modern facilities for the care of genital infections. Public demand for such facilities combined with the demonstration that it is not only a duty, but profitable to furnish them, will in the end convert the obstructionists.

The Press and the Problem.—The problem of how to bring authentic, effective and yet properly guarded information on the genital infections to public attention through the medium of newspapers, magazines and other influential organs of public opinion is an important one. Such a means of making even a few truth-telling words and names common knowledge, is of the greatest service. To be effective I believe the following principles should be followed. First, the information must have the sanction of a central authoritative source, which can standardize it and give it a positive quality. All through the medical field of the genital infections there are seeming contradictions and variations in method and opinion which are extremely confusing to the uninitiated. When doctors disagree, the unfortunate layman, lacking the power to interpret, is thrown into perplexities which leave him in doubt as to whether there is such a thing as real knowledge on the subject. The point over which the disagreement occurs may be trivial, and the wrangle purely scholastic, but it breaks down the confidence in leadership which promotes effective public action. Other obvious requirements of a written propaganda are the judicious but not vulgar use of the vernacular, precisely as in lectures, and the avoidance of technicality. Written material on health matters should not attempt to deal with treatment except to outline general principles and minimum requirements. If it does more than this, it belongs on the same plane as the practice of medicine by correspondence, which can become an insidious and vicious form of quackery to which the columns of many newspapers subscribe even while they ostensibly exclude untrustworthy and disreputable medical advertising. Printed propaganda must steer between the tendency to over-emotionalism that paints up genital infections and hangs them in a verbal gallery of horrors, and the dry-as-dust presentation of medical facts. It should never be forgotten, that in print there is no human voice, no compelling eye, no sharp incisive gesture that drives a point home to an intent audience. The vivid and dramatic in life, unskillfully managed, too often sounds like "sob-stuff" on

paper, and a tension and tone that can be safely carried, man to man, fails of effect when mixed with ink. I think too that writing on medical subjects is a form of special pleading which should so far as possible be directed at a specific audience. The effort to make material of this kind into a single-standard literary pabulum that all who run may read, makes it effective only for the middle third of the world audience, affronts the intelligence of the upper portions and flies over the heads of the lower portions. Italicizing and scare-head typography, too, while they may, like the loudly printed handbills, draw a crowd, detract in the end from the force of the presentation by robbing it of dignity. Where force of this sort must be evoked it should be exerted personally and not in print. I believe, too, that convincing material for a medical propaganda can best be written by those whose special experience and enthusiasm make their thumb-nail graphic touches true to life. Much of the literature on sex questions is flabby. It seems to lack genuineness because it is abstract. It is the specific instance, told with the art of the raconteur, and a proper touch on lights and shadows, that etches in the image which inspires action.

Laws and Law Enforcement; Compulsory Treatment.—It is worth while to say a word or two on the need for new laws and law enforcement in the modern campaign against syphilis and gonorrhea, since the influence of intelligent men and women can go far toward shaping such legislation, and the creating of the sentiment which sustains it. The rapid progress made during the war has brought certain issues into the realm of certainties which would have remained only possibilities for many years in times of peace. To have syphilis or gonorrhea, has suddenly ceased to be a private affair, and has become one of public concern. The first evidences of this change of viewpoint is found in the fact that syphilis and gonorrhea are becoming reportable diseases, like measles or scarlet fever. The second evidence is that it is no longer a matter of individual option with the patient whether he will be treated or not. He must be treated, and he must be treated not only until he is not contagious, but until he is cured. The entry of this compulsory element into the management of syphilis and gonorrhea will be welcomed by every physician who has had special experience with these diseases and has the interests of the public at heart. The constant menace of irresponsibility can scarcely be appreciated by those who have not had to deal with it under the conditions of special and dispensary practice. The ignorantly and the willfully irresponsible form a large factor in the spread of both syphilis and gonorrhea. No amount of personal good will on the part of the physician, no amount of free and available treatment, suffices to secure the co-

operation of some types. Perfectly possessed of all their faculties, they will leave the consulting room with fervid assurance of good intention, to disappear as completely as if they had stepped off the horizon. Among the ignorant and foreigners the problem becomes acute. I have seen nurse, interpreter and doctor working to pursuade a man with a mouth and throat full of syphilitic germs, talking in relays, gesticulating, arguing, their faces running the gamut of emotions from good will to the hopeless anger of defeat, and seen the irresponsible and unprincipled carrier of the disease close the conversation by turning on his heel and sauntering from the room without a word. The power to press a button and have that man arrested at the door would have seemed God-given at that moment. There is as great a need for legal compulsion back of the control of syphilis and gonorrhea, as there is behind the prevention of crime.

The Reporting of Syphilis and Gonorrhea to Health Officers.—The reporting of cases of syphilis and gonorrhea to the public health authorities is at present carried out in modified form in a number of states in this country. The measure is a rational one, contributing information of some value and at the same time doing much to educate patient and public in the contagiousness of the infections concerned. As a means of controlling irresponsibles it is absolutely essential. Systems of the type of the West Australian, do not require reporting by name unless the patient shows himself disposed to neglect treatment and thus subject other to risk. An unaccountable prejudice even against this form of impersonal reporting exists although it must be admitted that the opposition too often comes from the type of medical man whose methods and ideals are a generation old, who cannot give arsphenamine and therefore does not believe in it, and who feels that a contagious disease is the private property of the owner and may be obtained from him on the ancient principle of *caveat emptor*. A public which is concerned for its own protection will first see that every infected person who is so disposed will be able to secure the best modern treatment without regard to his means or lack of them. Having fulfilled its duty in this regard, it will be justified in demanding that all infected persons, regardless of personal vagaries and desires, shall be treated, and that if they show themselves inconsiderate of the welfare of others, they shall feel the force of the law.

Legislation Needed on Medical Professional Confidence.—A necessary corrolary to all progressive legislation on such matters is a provision which unbinds the tongue of the physician[1] where infec-

[1] As in the State of Ohio.

tion is about to be transmitted, and even punishes him as an accessory to a crime if he fails to do his duty in making the facts known to the proper persons.

Personal Prophylaxis; Continence.—The so-called personal prophylaxis of genital infections is the final consideration in a discussion of the prevention of these diseases. Personal prophylaxis includes those things which the individual can himself do to avoid acquiring gonorrhea or syphilis. *The standard of personal prophylaxis is abstinence from sexual relations and personal intimacies except in normal marriage with a healthy person.* It has no substitutes, and no competitors.

The Medical Prevention of Syphilis and Gonorrhea.—The medical prophylaxis of the genital infections rests upon a discovery by Metchnikoff, Roux and Maisonneuve in 1906, that a properly prepared medicinal ointment containing certain mercurial salts, if rubbed into the place where the germs of syphilis had been deposited, within a few hours after exposure, was able to prevent the development of a chancre by killing them before they could gain a foothold. This method has been found to have a certain amount of efficiency in the prevention of gonorrhea also, but it has been discarded for this purpose in favor of the use of certain injections into the urethral canal. The combined prophylaxis of syphilis and gonorrhea was rapidly adopted into all the armies of the world following a series of rigorous tests, and has demonstrated a remarkable degree of efficiency, which has been increased by the realization that to be of the greatest service it must be administered within an hour after exposure, and be given by a specially trained attendant under medical supervision. Medical prophylaxis is not infallible. Even when rigorously carried out it offers no protection against the grave risks of extra-genital infection. Its percentage of failure is highest precisely where the risk of infection is greatest, among those who cannot exercise intelligence in its application. Then, too, apparently trifling variations upon the standard methods often render it ineffective, a fact which accords with the familiar experience of physicians as to the uselessness of the average attempt of a knowing patient to avoid infection by washes and similar applications. The prophylaxis of syphilis and gonorrhea will to some extent become common knowledge as a result of the wholesale spread of such information through army service. This does not alter the fact that to be at its best it must remain under the control of the medical profession. If every person who has been exposed to the risk of syphilis or gonorrhea could be persuaded to report within an hour to a competent physician to receive effective prophylactic treatment, the prevalence of the disease concerned would be enormously re-

duced. It remains for the individual physician to adopt the standard of personal relation to the problem of prevention so ably set forth in the Manual[1] used by the United States Army Medical Corps. As an opportunity to give a few words of sound advice, to encourage a new clean point of view, to bring home a great moral principle, the moment when a young man appeals for rescue from the possibly disastrous results of an indiscretion has few equals in the practice of medicine.

Conclusion.—This chapter closes the study of the modern problem of syphilis and gonorrhea. It has been the aim of the discussion to present the facts bearing on these diseases not alone as a medical issue for medical men, but as a problem in human nature and in the moral strength and weakness of the social order, in whose solution each and every one of us has his part. Though we may be spared the actual miseries of the sick, their pain must now be our pain, their struggle our struggle. Their defeat and death are symbols of our own futility. Only by such a socialization of our point of view toward the public health can we hope to advance beyond our present outlook and effectiveness. With the movement against germs and bodily disease must go a will to right spiritual wrong, an idealism for the body which is incomplete without the perfection of the soul. If we see the two as one, we have made the first step. If we as a race can feel our brothers' sickness as our own, their lacks our lacks, their triumph in flesh and spirit, our triumph, there is in us the stuff of destiny and there awaits us a future without finite limit.

[1] A manual of treatment of venereal disease. Chicago, Am. Med. Assn., 1917, 100 pp. This manual revised for use of civilian physicians and issued by the United States Public Health Service, 1919.